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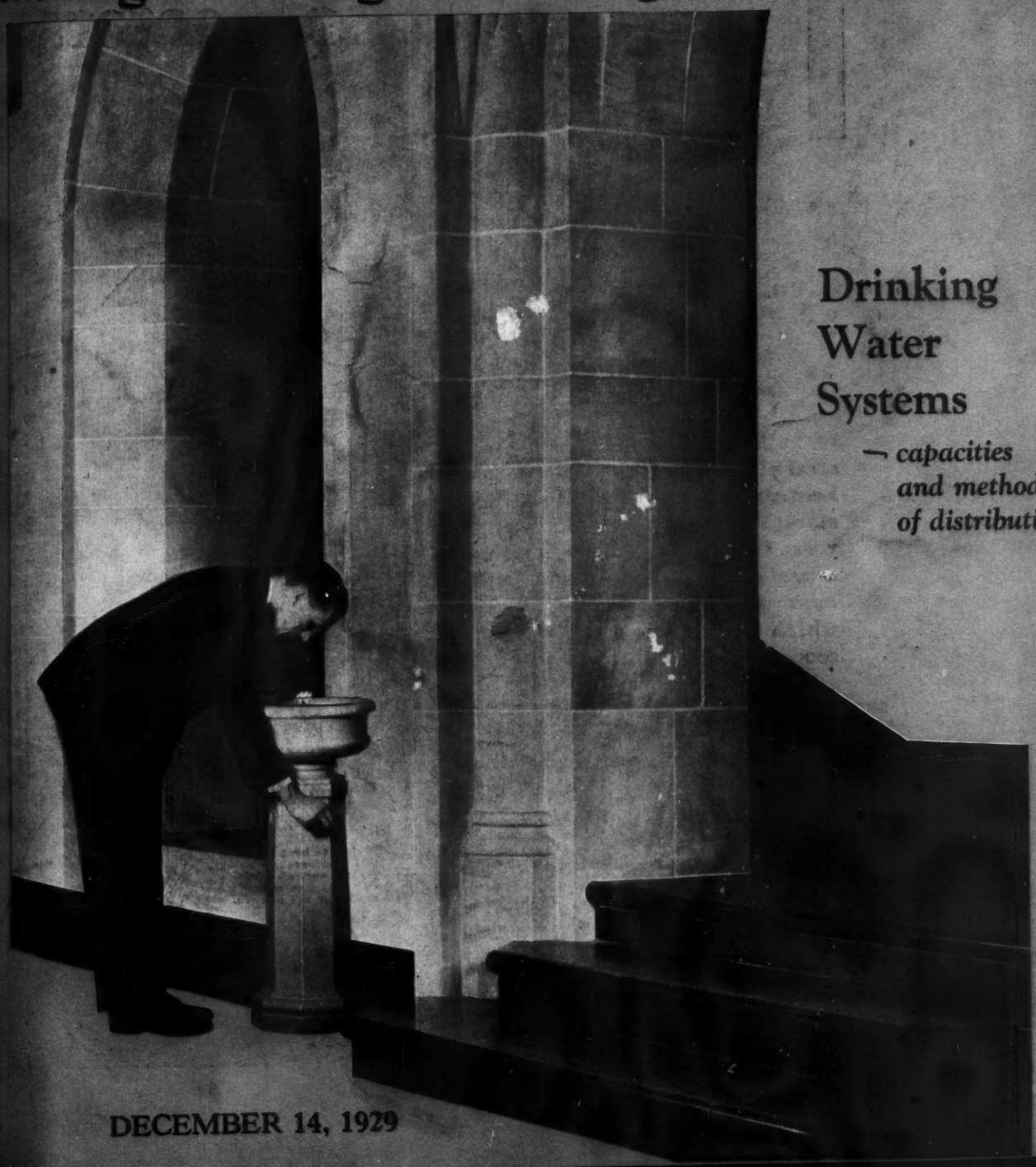
DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising



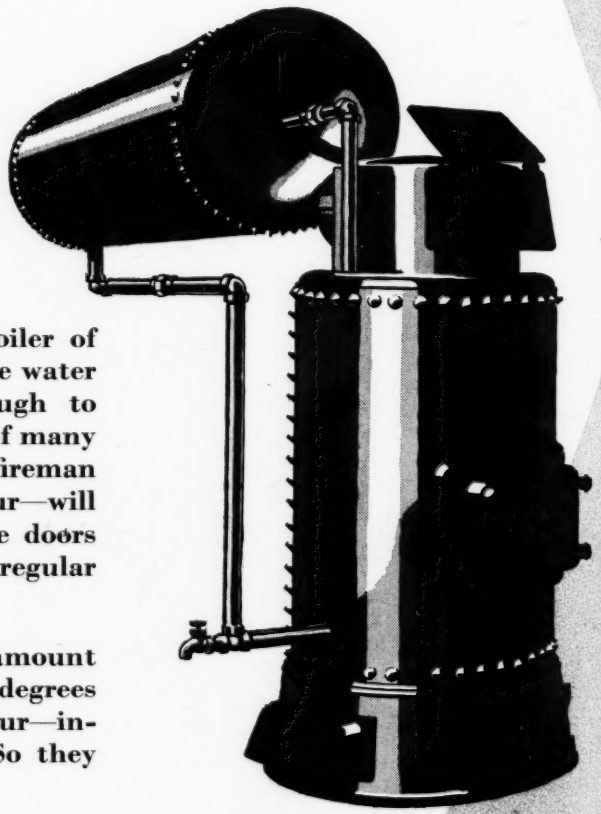
Drinking Water Systems

— *capacities and methods of distribution*

DECEMBER 14, 1929

TABASCO

Steel Water Heaters



17 sizes to heat from 130 to 700 gallons per hour. Strong enough for any city water pressure. Also made for 100 pounds.

Built like a Kewanee Boiler of steel plate—riveted—these water heaters are sturdy enough to stand the wear and tear of many years service. And every fireman—professional or amateur—will appreciate the boiler size doors which permit using the regular scoop shovel.

Ratings are based on the amount of water they will raise 50 degrees in temperature, per hour—instead of the usual 25. So they really do twice the work.

KEWANEE BOILER CORPORATION

division of

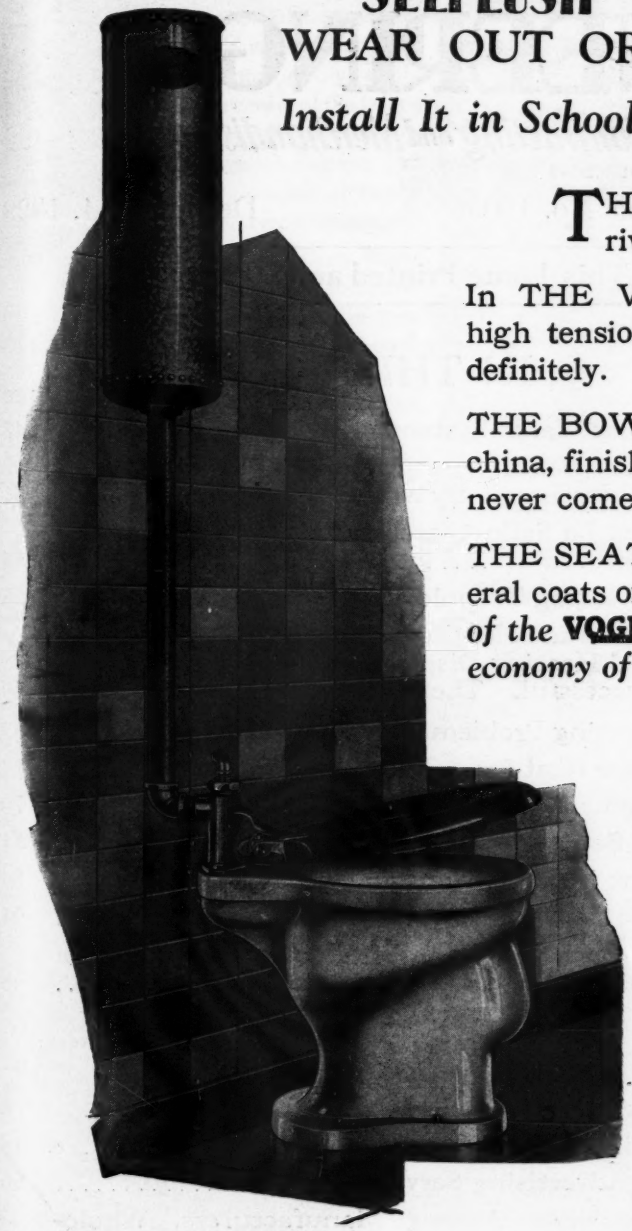
American Radiator and Standard Sanitary Corporation

Kewanee, Ill. Branches in 40 Principal Cities

Hot Water is as necessary as Heat

THERE IS NOTHING ON THE VOGEL SELFLUSH NUMBER TEN TO WEAR OUT OR GET OUT OF ORDER

Install It in Schools, Institutions, and Factories



THE TANK is galvanized, heavily riveted, and practically leak-proof.

In THE VALVE all wearing parts are high tension bronze—they will last indefinitely.

THE BOWL is heavy, two-fired vitreous china, finished in a high hard glaze that will never come off.

THE SEAT is air-seasoned oak, with several coats of high gloss varnish. *Every part of the* **VOGEL** *Number Ten is designed for economy of upkeep.*

We help you sell the VOGEL Number ten with folders, broadsides, blotters, stickers and all kinds of direct-by-mail. Folders are imprinted with your name and address. Let us know how many you need, or if you want stickers or blotters. We are glad to supply them.

On July 16 last the endurance test started. It is still going, without the replacing of as much as a washer.

See inside back page for COLDIE and FROSTIE—the VOGEL Cold-Test Twins.

JOSEPH A. VOGEL COMPANY

Wilmington, Del. St. Louis, Mo.

.. VOGEL Products ..

DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

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WOLVERINE

DEPEND'ABILITY --- MOULDED INTO E'ACH·WB·F'AUCET

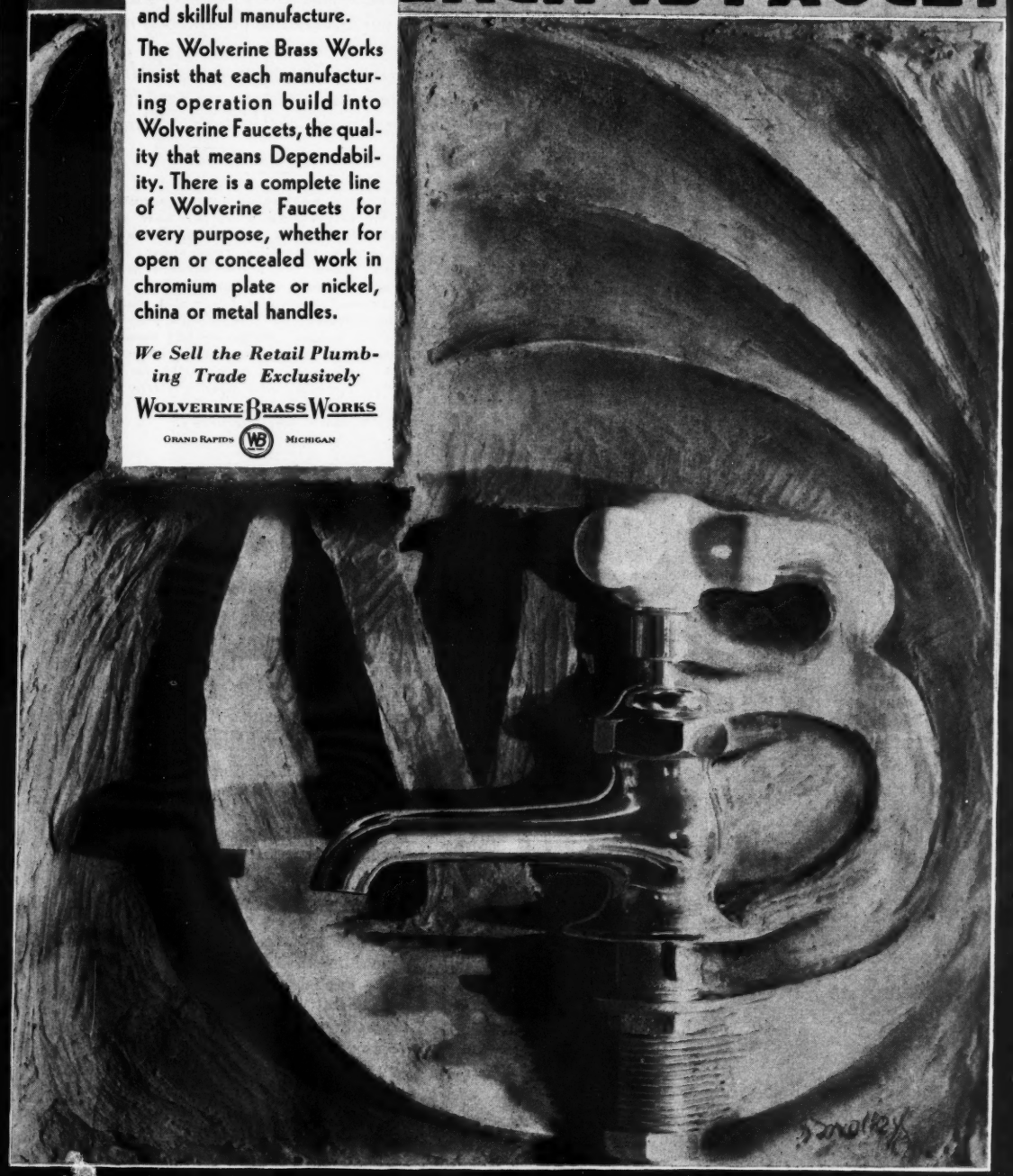
Master Plumbers throughout the country gladly assure their customers of the lasting and satisfactory performance of Wolverine Faucets. This is a natural result of careful and skillful manufacture.

The Wolverine Brass Works insist that each manufacturing operation build into Wolverine Faucets, the quality that means Dependability. There is a complete line of Wolverine Faucets for every purpose, whether for open or concealed work in chromium plate or nickel, china or metal handles.

We Sell the Retail Plumbing Trade Exclusively

WOLVERINE BRASS WORKS

GRAND RAPIDS WB MICHIGAN



"Domestic Engineering" Editorials are always worthy of your attention.

Between Ourselves

"Ideals have been the inspiration for all achievement."—John A. Quinn, Pres. N. A. M. P.

As certain as that historic quotation, beginning "together we stand," is the incontrovertible definition of a strong and prosperous commonwealth, as certain is the co-operation of the different units of a particular industry the basis of its well-being.

Your Editor

MORE specifically, what fundamental characteristics would every manufacturer like to see in every dealer who is the connecting link between his factory and the ultimate user of his product? What fundamental characteristics would every dealer like to see in the firm he represents and the product on which, as a business man in his community, he stakes his reputation and by it succeeds or fails? These are questions present in the manufacturing and distribution problem of all industries, and therefore always timely. In his article, "What the Heating Contractor Should Know About Oil Burners," Ara Marcus Daniels discusses both questions for the benefit of those concerned with the oil burner industry, presenting an analysis that sheds light on remediable deficiencies which now exist to prevent closer co-operation betwen the manufacturer and the dealer, and outlines the prerequisites for a successful agency.

THE article by M. T. Bullen, entitled "Drinking Water Systems," previously mentioned on this page, appears in this issue, replete with illustrations, tables and diagrams. The author has handled this interesting phase of engineering with a deft comprehension of the problems of planning, estimating and installing drinking water systems on both small and large scale projects. We are certain that you will want to read Mr. Bullen's very practical study of this subject as an addition to your own technical equipment.

DISPLAY being one of the most important forms of salesmanship, most of our readers will be glad to learn more about how to increase their sales through this medium. Those who wish to add to their knowledge of this subject can turn to the Plumbing and Heating Merchandising section in this issue, where will be found several pages rich with profitable suggestions for the merchant plumber. The article is well illustrated with a number of excellent photographic studies. Also in this issue, the Master Salesman discusses the "deferred sale" for readers of his department.

THOMAS H. JAMISON, Butler, Pa., was sent a letter by our circulation department, notifying him of the expiration of his subscription for DOMESTIC ENGINEERING. The following is Mr. Jamison's notation on the letter, which he returned to us with his renewal:—"Just plain carelessness. Can't get along without it."

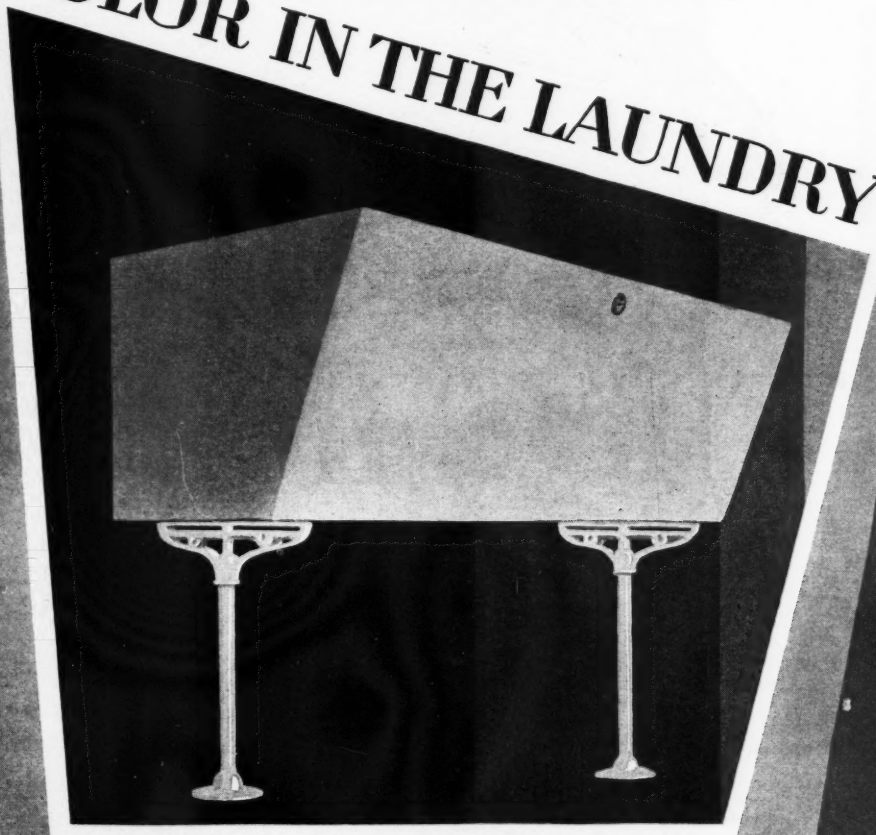
WE ARE publishing in this number an interesting story of how the novel problem of supplying radiator heat for a traveling tent show was solved, when the show owners were confronted with an unexpected siege of rigorously cold weather, which meant either artificial heat or actors playing to empty seats. Naturally the owners chose not to make a complete sacrifice to the elements, so they called in the heating experts, who used a little ingenuity and saved the day. You will find the story worth reading.

NO DOUBT many of our readers have reflected upon the relative fire hazard of hot air and steam and hot water radiator heat. And, as we have recently had a letter from one of our subscribers, asking for information on this subject, we have collected a symposium of opinions on the matter from fire underwriters, fire insurance experts, actuaries and research engineers, all of which will be found embodied in a story entitled "Heating Systems And Insurance," in the news section of this issue. This collection of information is authoritative and highly illuminating.

THE front cover of our next issue will be illustrated with a picturesque scene from the fantastic Caverns of Luray, in Luray, Va., while a story, describing how the cool, healthful air from the caves has been diverted into a large home nearby as an unusual method of air conditioning, will be published in our section devoted to technical articles. This intelligent adaptation of natural circumstances as a means of ventilation provides a unique story, which is made doubly interesting by the accompanying series of beautiful pictures of this magnificent subterranean realm.

The man who is so busy that he does not have time to read his trade paper is like the man who was so busy chopping wood that he did not have time to sharpen his axe

COLOR IN THE LAUNDRY



THIS MODERN IDEA

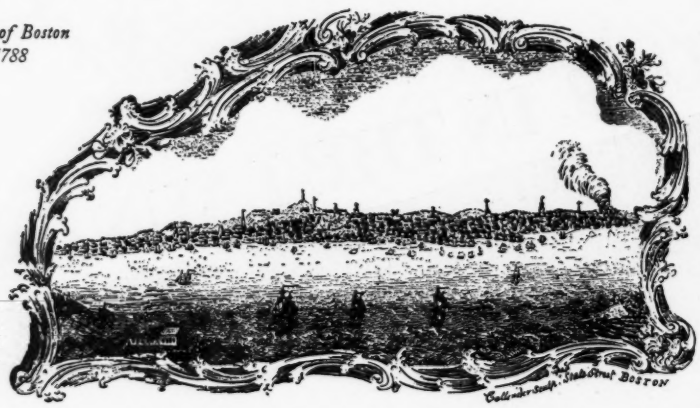
Compactness and color! These are modern—Alberene meets the trend most opportunely... Compactness! All Alberene Soapstone laundry trays always have been endowed with a greater capacity, length for length, than any other quality tubs on the market. And now comes the new 40-inch tray—a masterpiece of compactness—that outpoints them all... Color! The newest and most pleasant of all home developments. Color, even gaiety—everywhere. In the kitchen, in the bathrooms, in the furnishings—and now in the laundry. The Alberene Soapstone tray in the 40-inch size may be obtained in four new and beautiful shades—in addition to glistening white... And economy, too! In specifying Alberene, you always have saved money, and now with the 40-inch tray that saving is even more substantial—a full 33⅓%.

Full information on request

ALBERENE STONE COMPANY
153 West 23rd Street New York, N. Y.

COLOR in the LAUNDRY

ALBERENE
SOAPSTONE LAUNDRY TRAYS



View of Boston
1788

The Smoke

marks

Paul Revere's Foundry

Above print of Boston was engraved in 1788. The eloquent cloud of smoke was from Paul Revere's foundry.

Six years later, Revere, the midnight horseman, began that stirring expansion which broke European copper and brass monopoly and established an American industry.

✣

AFTER A CENTURY AND A QUARTER

But even Revere's dream did not soar to the picture of today. His original company, handed down to son, grandson, great-grandson, was first merged into the Taunton-New Bedford Copper Company, and last year became the cornerstone of a nation-wide consolidation.

In it are the two largest copper mills of the country, Baltimore Copper Mills, founded 1814, and the new continuous rolling mill, completed in 1929 by the Rome Brass & Copper Company. With these pioneers of the East are joined Michigan Copper & Brass Company, Higgins Brass & Manufacturing Company, plants that grew with Detroit, and Dallas Brass & Copper Company, ultra-modern Chicago plant serving industrial West.

✣

REVERE IN 1929

These six divisions, operating twenty-five percent of the country's copper, brass and bronze rolling-mill facilities, perpetuate the name of Paul Revere in the industry and in the very business which he founded:

REVERE COPPER AND BRASS INCORPORATED.

Revere Copper *and* Brass
INCORPORATED

Divisions: **Baltimore** *Copper Mills, Baltimore, Md.* . . **Dallas** *Brass & Copper Co., Chicago, Ill.* . . **Higgins** *Brass & Manufacturing Co., Detroit, Mich.* . . **Michigan** *Copper & Brass Co., Detroit, Mich.* . . **Rome** *Brass & Copper Co., Rome, N. Y.* . . **Taunton-New Bedford** *Copper Co., Taunton, Mass.*

GENERAL OFFICES: ROME, N. Y.

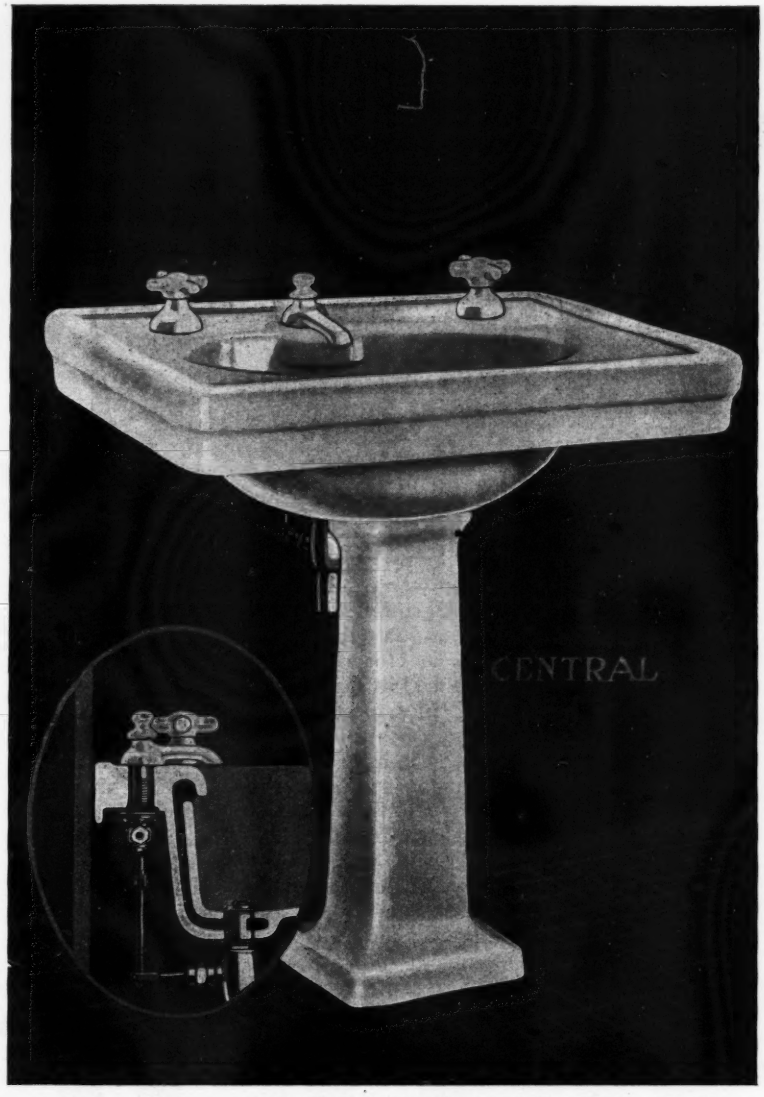


Figure 1148, Lavatory Combination with Pop-Up Drain, Licensed under Pat. No. 1,221,093. No metal exposed.

Allwite for Charm and Utility

GOOD craftsmanship *under* the surface, as well as beauty *on* the surface, characterize this popular Central combination. Adjustable to fit any lavatory. The pop-up mechanism is simple in design and certain in operation. Snowy, vitreous Allwite china spout and handles. A combination truly in harmony with the white pedestal, and with that which is so often the mark of conservative good taste—the white bathroom.

Figure 1148, and other Central Combinations are to be seen at your Wholesalers.

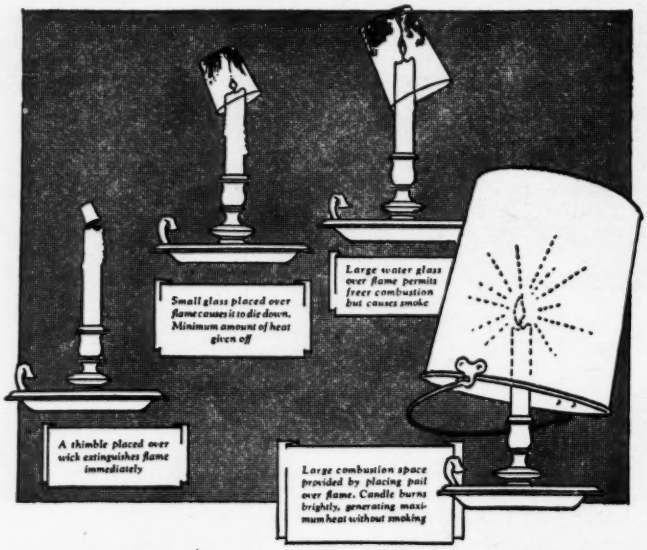
QUALITY CENTRAL BRASS ALWAYS

CENTRAL

BRASS MFG. CO.

CLEVELAND OHIO.

Reduction of available air space around a candle flame withholds proper oxygen supply and causes incomplete combustion or extinguishes the flame. The Pacific's large combustion chamber insures maximum efficiency because the fuel has ample opportunity to mix with air and burn.


Small glass placed over flame causes it to die down. Minimum amount of heat given off
Large water glass over flame permits freer combustion but causes smoke
A thimble placed over wick extinguishes flame immediately
Large combustion space provided by placing pail over flame. Candle burns brightly, generating maximum heat without smoking

Giving combustion a chance

Any old kind of a firebox won't do! Average soft coal runs 24% to 48% volatile gas. Insufficient combustion space permits much of this gas to escape up the flues unburned . . . and there is a loss of 2% in the fuel for every 4-10 of 1% of carbon monoxide (partly burned gas) in the flue-gases.

The U. S. Bureau of Mines, after exhaustive tests, recommends a minimum of five to six cubic feet of combustion space per square feet of grate surface in order that the volatile gases may have time and space to mix with air and to burn. This is the standard on which the Pacific Steel Heating boiler is designed, its combustion space running 15% to 35% larger than that in other boilers.

Again and again the Pacific has demonstrated its fuel economy in flue-gas tests. Consistently, Pacific has proved that the maximum of available heat units in the coal is being obtained.

PACIFIC

STEEL HEATING BOILERS

AND CAPITOL RADIATORS MAKE A LOGICAL COMBINATION

Added to large combustion space, positive circulation, and large direct heating surface is the rugged welded construction which has made the Pacific leader in its field and dominant in the industry.

There is a Pacific installation to fit your next building. Write for literature.

PACIFIC STEEL BOILER CORPORATION

Factories: Waukegan, Ill., Bristol, Pa.

Sales Offices in 58 Cities

Division of United States Radiator Corporation, Detroit, Mich.

CUSTOMER SATISFACTION

THAT'S WORTH A DOZEN WRITTEN GUARANTEES!

THE greatest guarantee of satisfaction ever written on hot water service isn't in ink—in type—or even in gold letters.

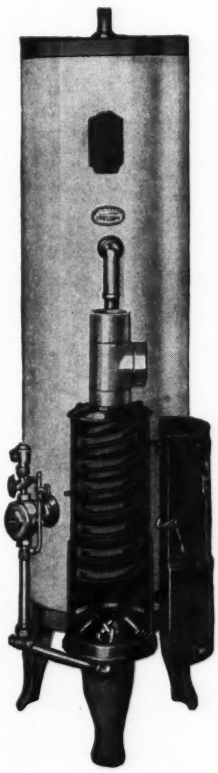
It's in engineering design!

That simple, common sense engineering design of the Side Arm Type of Hot Water Heater.

The design itself is *guarantee* of full life tank service. *There is no flame or gas in direct contact with it.*

The design itself is *guarantee* of hot water, day or night, year after year—QUICK! . . . Due to the fact that the water passes through coils in direct contact with intense flame.

The design itself is *guarantee* of clean water—due to the fact that the water is drawn off the tank from above the sediment line, and cannot be filled with scale or sediment.



No. 20SA
List Price $66.00
Complete

Service like this—provided only by the Side Arm Type of Heater—builds sound satisfaction among your customers. The kind every sincere plumber is interested in giving.

Advanced developments in design and features make the Hotstream Heater an even more satisfactory seller than ordinary side arm heaters. Write TODAY for the details that will quickly help you to get your share of this profitable business.

The Hotstream Heater Co.
"Makers of Heaters that Heat"
Cleveland, Ohio

HOTSTREAM
AUTOMATIC STORAGE
HEATERS

don't sell cast iron

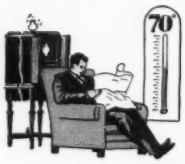
sell Made-to-Measure Warmth

Playroom

Bed Rooms

Grandma's Room

Bath Room



Living Room

TODAY'S APPROACH TO BIGGER HEATING SALES

Make your prospect *want* it—make it easy for him to *buy* it—make him *positive* of performance—that is today's approach to bigger, better heating sales. National's revolutionary plan provides you with these three steps, reinforces and supplements all your selling effort.

The National *Made-to-Measure* idea, by stressing warmth instead of cast iron, makes prospects want the National *Made-to-Measure* Heating System.

The National Protective Payment Plan lets you offer installment payments, makes it easy for any customer to pay. You get your money in full when the job is completed. An insurance clause takes care of your customer's payments in case of his death or disability. Poor pay risks are reduced—more profit is earned on a smaller percentage of working capital. The National Boiler Bond establishes complete conviction. Each National Boiler is guaranteed—and the guarantee endorsed and specifically defined by a Surety Bond issued by The Fidelity and Casualty Company of New York. It covers three distinct stipulations as to performance, manufacture, design, and replacement of defective parts. It assures customer satisfaction, protects you, carries with it the conviction that you are selling material of highest quality and proved dependability.

These three steps mean better sales—one step brings them to you; just write for complete information. If you haven't the Bonded Rating Booklet, we'd like to send you a copy.

NATIONAL RADIATOR CORPORATION

***Executive Offices:* 55 West 42nd Street, New York, N. Y.**

NATIONAL *Made-to-Measure* HEATING SYSTEMS

Copyright 1929
National Radiator
Corporation

THE CELEBRATED SKIP TOOTH DIE
(Genuine Nye)
REG. U. S. PAT. OFFICE

A Letter from Harry G. Nye

Dec. 14, 1929.

To The Plumbers and Steamfitters of the U. S. A.

"WHAT TO BUY THE WIFE FOR CHRISTMAS"

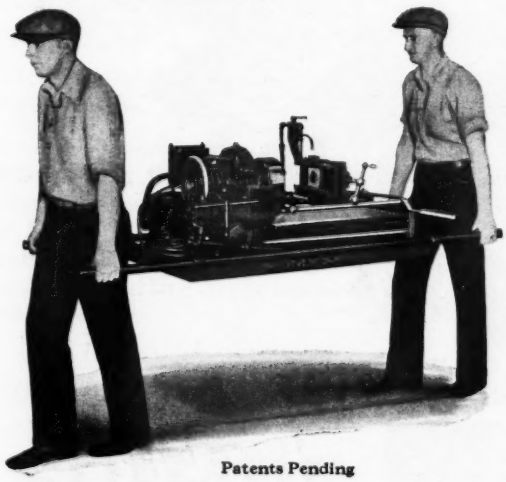
Fellow Citizens:

It's a funny thing, but I have seen great, big, broad-shouldered, arrow-collar, hart-schaffner-and-marx men go through fire, flood, famine, falling markets and prohibition without batting an eye, and yet I have seen those same strong men break down and cry when they had to pick out a Christmas present for the wife.

Does a woman act that way when she has to pick out ours? I should say not. She has the system, and it is because we haven't the system that we are such a bunch of saps. When she goes down to do her Christmas shopping she knows just where to go and just what she wants.

And then what happens? Christmas comes, and she leads you into the front room and shows you your present, or presents. And what is it, or them? Why, bless her thoughtful heart, it is a hand-painted bridge-lamp, a satin-lined sewing-basket, a seven-dollar vase, or something else to delight the masculine soul.

Well, all you great, big, broad-shouldered weaklings, gather around. I've got an idea, and if you will come closer, I will communicate to you the secret work of the newly-organized (here and now) Amalgamated Order of Long-suffering Husbands, who don't want any pottery, but would appreciate a pipe, or something equally useful.



Patents Pending

"THE LIGHTWEIGHT CHAMPION"
Threads—Cuts Off and Reams
CAPACITY ½ to 2 INCHES

This Christmas why not delight her heart with a Nye Portable Threading Machine or some Nye Dies?

Of course you can't charge them to her and tell us to send her the bill. But anyway she will get a lot of things you want, and that is the system. For once, as far as you are concerned, it will be a real Christmas, and not just December 25. And be sure to give her Nye tools, because you deserve the best. Prompt delivery guaranteed.

Yours for service,

Harry G Nye

OTHERWISE KNOWN AS
THE NYE TOOL & MACHINE WORKS
4120-30 Fullerton Avenue Chicago, Ill.

Copyright 1929 by Harry G. Nye All rights reserved

THE CELEBRATED SKIP TOOTH DIE
(Genuine Nye)
REG. U. S. PAT. OFFICE

EAGLE!

A Wiping Solder that really works the way YOU want it to . . .

Eagle Wiping Solder is scientifically formulated so that you can use it without doctoring on all kinds of jobs.

It hits a happy medium, is neither too fine nor too coarse. It is made uniformly according to scientifically worked out, well balanced formulae—from the highest grades of new metals, which means cleaner solder and smaller loss.

You will like the feel of Eagle Wiping Solder. Try some on your next job. Your dealer carries it. Free folder on request.

Hits a happy medium

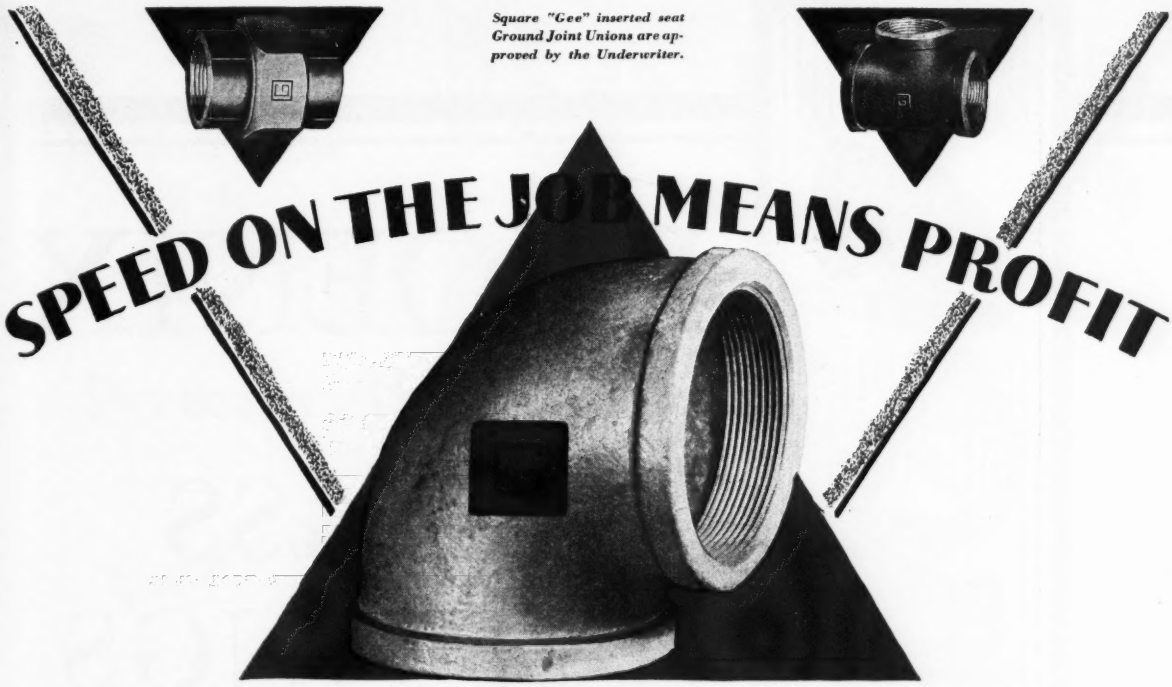
Works well on all kinds of jobs

Does not require "doctoring"

EAGLE *Wiping Solder*

made by The Eagle-Picher Lead Company, Chicago, Joplin, Cincinnati . . . producers of Eagle *Super* Flange, Eagle Pipe and Fittings, Eagle Solders and Bearing Metals, and many other lead, zinc and allied products.

Reg. U.S. Pat. Off.



Square "Gee" inserted seat Ground Joint Unions are approved by the Underwriter.

SPEED ON THE JOB MEANS PROFIT

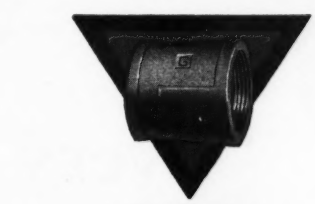
STUBBORN fittings with skimpy threads that refuse to take hold!

Fussy fittings with beading no wrench can grab securely.

Erratic fittings—one that fits, another that doesn't.

Be done with them all. They eat up time. They destroy your profit.

Square "Gees" mean faster, better work. Reamed and recessed, they start like a sprinter. Deep, clean-cut threads grab-quick-and-hold-tight. A husky beading welcomes your wrench.



Square "Gees" are good all the way through. The cream of raw materials is molded the Grabler way. Molds are carried to the metal. Every fitting is cast at the same, correct heat. Constant inspection makes sure no mistakes or slip-ups reach you.

High costs go down with Square "Gees" on the job. Yet they cost no more than ordinary fittings.

Play safe! Say "and be sure they are Square 'Gees'" every time you order fittings.

The **GRABLER MANUFACTURING** *Co.*
and its subsidiary **GRABLER-REPUBLIC,** *Inc.*
4900 Euclid Building . . . Cleveland, Ohio

YOUR FITTING PROBLEM IS SOLVED WHEN YOU SAY SQUARE "GEES"

SQUARE Pipe

"GEE" Fittings

MALLEABLE, CAST IRON

DRAINAGE, BRASS

PHOENIX

BRASS FITTINGS

"Every Fitting Air Tested Under Water"

A Complete Line of Standard and Extra Heavy Brass Fittings

PHOENIX BRASS FITTINGS CORP.
IRVINGTON, NEW JERSEY

Ball Bearing Pump

Permanently Lubricated!

INSTALL it and forget it!—The pump runs on three ball bearings which are lubricated for life—packed in grease and sealed against dirt and moisture. Other improvements such as

Spring-tension gland
Water-seal overflow and
Fully enclosed working parts

make this a dependable, fool-proof unit that will operate continuously with practically no attention or service.

Our confidence in this pump is such that we back it with a *2 Year Guarantee* and will replace the pump if trouble develops within that time.

GOULDS PUMPS, Inc.
Seneca Falls New York

Ever-Oiled Fresh Water System W-40

The finest low-priced system ever built. Will give years of quiet, trouble-free service. Equipped with Ever-Oiled Ball-Bearing Pump, *guaranteed for two years.* Capacity, 210 gallons per hour. Suction lift, 22 feet. Discharge pressure, 43 lbs. Full powered with ¼-h.p. 60-cycle motor and V-Belt drive for continuous service such as sprinkling, etc. Comes completely assembled ready to install.

Shown above is the Goulds Ever-Oiled Ball-Bearing Pump, with protective hood removed. Notice the improved construction details. Below: Goulds Ever-Oiled W-40 Water System, completely assembled and ready to install.

LIST PRICE
$79.50
F. O. B. Factory and Warehouses

GOULDS EVER-OILED

W-40 WATER SYSTEM

Right: Fig. 370 Jenkins Standard Bronze Globe Valve. Above: Installing Fig. 370 Valves in new piping.

Easily installed — saves time

Contractors' men like to handle Jenkins. They like the "heft" of these sturdy valves with bodies that aren't sprung under rough treatment. They like the heavy clean cut threads that reduce the possibilities of stripping, and which simplify the work of installation. And they know that when Jenkins go in, they go to stay.

Your supply man can furnish Jenkins Valves of bronze and iron, in standard, medium and extra heavy patterns.

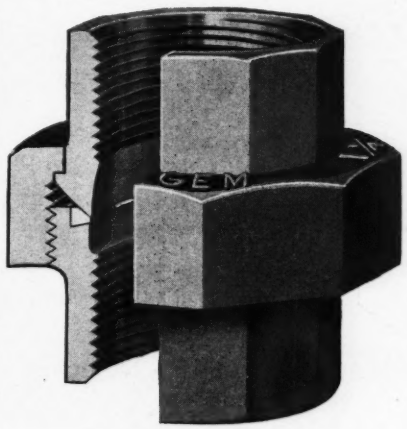
JENKINS BROS.

80 White Street, New York, N. Y. — 133 No. Seventh Street, Philadelphia, Pa.
524 Atlantic Avenue, Boston, Mass. — 646 Washington Boulevard, Chicago, Ill.
JENKINS BROS., Limited, Montreal, Canada; London, England
Factories: Bridgeport, Conn.; Elizabeth, N. J.; Montreal, Canada

Jenkins
VALVES
Since 1864

150 Pounds Pressure CRANE VALVES 2500 Pounds Pressure

A new union that offers more value to both contractor and customer



Crane Malleable Iron Gem Union for steam working pressure up to 150 pounds

For plumbing and steam fitting contractors, Crane Co. has made this new Gem Union, No. 512.

In it is quality rarely attained. It is as trouble-free as it is humanly possible to make it. And well may this be true. For it is planned by the same engineers, executed by the same workmen, and manufactured by the same exacting process that entered into the making of the famous Crane Railroad and Navy Unions.

For all general piping installations, steam, water or gas, you could do no better than recommend it. Its mechanical excellence and the way it can be slipped into the line without gaskets will increase your profit and speed the job. While its non-corrosive joint, and lasting untroubled service will please your customer.

CRANE

GENERAL OFFICES: CRANE BUILDING, 836 S. MICHIGAN AVE., CHICAGO
NEW YORK OFFICE: 23 WEST 44TH STREET
Branches and Sales Offices in One Hundred and Ninety Cities

Photo courtesy Metro-Goldwyn-Mayer from "Our Dancing Daughters"

HEAT AS YOU LIGHT!

IF HEAT WERE VISIBLE you would see the close parallel between modern industrial heating and the effective stage lighting above.

Modine Unit Heaters accomplish the same definite directional control in heating that we see around us every day in thousands of lighting applications.

And the even distribution of heat that Modine Unit Heaters provide leaves no "heat shadows" or cold spots that mean discomfort, reduced man-efficiency and unfavorable health conditions.

Modine Unit Heaters have brought this great improvement in heating. They are suspended overhead, just as lights are installed. Deliver heat down. Keep it concentrated where needed . . . Modines, providing better heat, actually cost you less to buy and less to operate. Let us send you complete information.

Modine Unit Heater, Model 701 — 130 lbs. — replaces nearly 2 tons of pipe coil radiation.

MODINE MANUFACTURING CO., (*Heating Division*)
1703 RACINE ST. RACINE, WIS.

(Branch offices in all large cities)
***London Office:* S. G. Leach & Co., Ltd., 26-30 Artillery Lane.**

Modine Unit HEATER

A MODINE Product

FOR STEAM, VAPOR, VACUUM, HOT WATER HEATING SYSTEMS

Fight Fuel Waste with

Weil-McLain

SCIENTIFIC COMBUSTION

BOILERS

350 to 1250 Steam rating
600 to 2100 Water rating
give New Smith "16" wide sales range

• • •

We emphasize the fact that the new Smith "16" is a sectional boiler and therefore covers a wide range of heating capacities. This fact, together with its remarkable efficiency, especially with oil or gas burners, simplifies your sales problem. You can concentrate on this one model for a large part of your sales and quickly establish for it a local prestige that builds business.

Sell Its Economical Operation

Most of your customers don't realize that low cost of heating depends upon economical operation and not on the first cost of the boiler. Remind them that they buy their boiler only once, but they have to pay for fuel every year.

That's why the new Smith "16" has more Fire Surface than any other boiler made of equal grate area—enough to absorb more heat than the homes in which it is installed will ever require—enough to absorb the total volume of heat supplied even by an oil or gas burner. And you know an oil or gas burner is the hardest test of all of a boiler's efficiency.

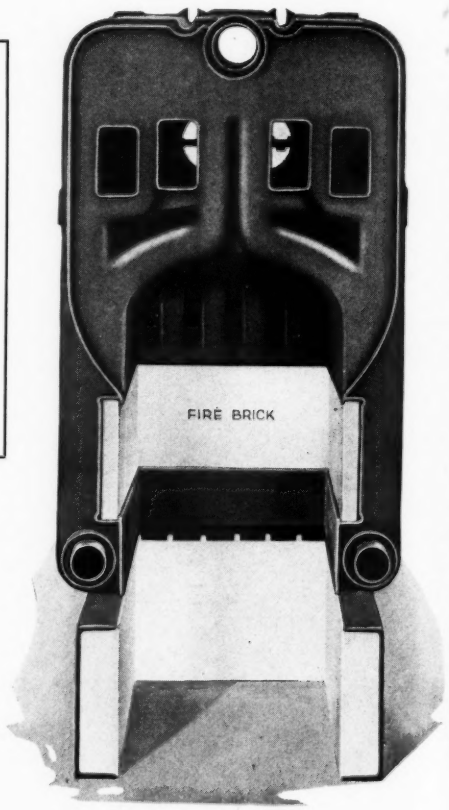
The new Smith "16's" fire brick lining, a feature usually found only in industrial boilers, alone effects a saving of as much as 10% of fuel.

For complete information write for a free copy of our booklet, "The Smith 16." Address: The H. B. Smith Co., Dept. A-68, Westfield, Mass.

SMITH "16" SALES FEATURES

The New Smith "16" has everything that makes for easy selling and satisfied customers.

- Extra Large Fuel Space
- Extra Large Combustion Space
- Fire Pot Lined with Fire Brick
- Auxiliary Air Supply
- Extra Large Fire Surface
- Especially Adapted for Gas and Oil
- Insulated with Air - Cell Jacket.



THE H·B·SMITH
BOILERS & RADIATORS
Used in fine homes and buildings since 1860

The H. B. Smith Boilers for steam, hot water and vapor heating; radiators; and hot water supply boilers; for every type and size of private home, office building, factory and public building.

SALES OFFICES AND WAREHOUSES:

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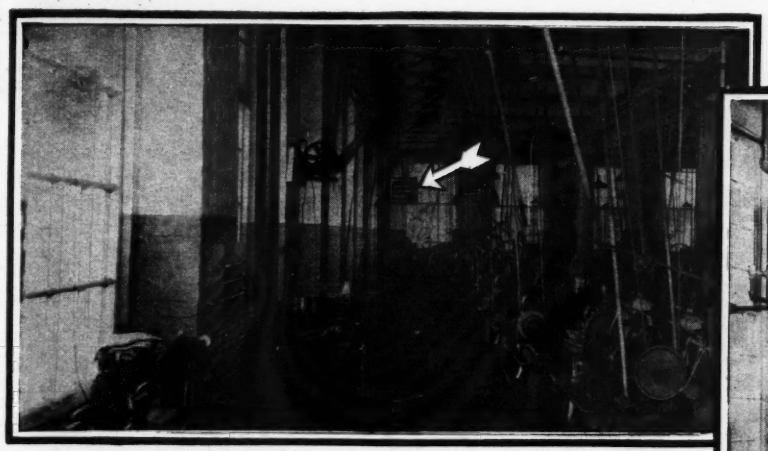
10 E. 41st St.

PHILADELPHIA
2209 Chestnut St.

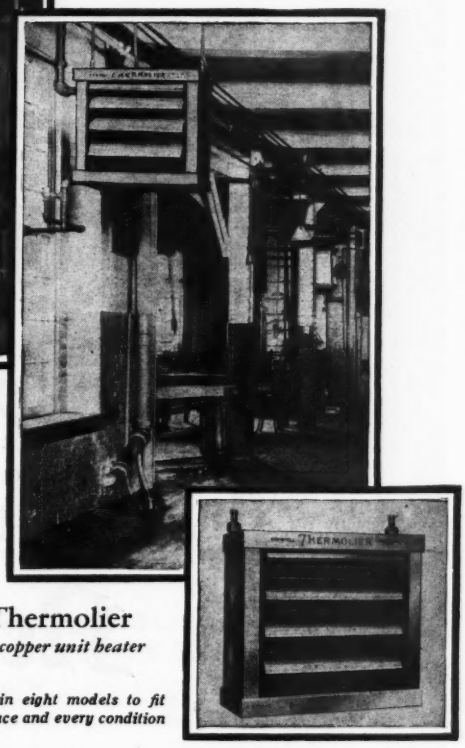
BOSTON
640 Main St., Cambridge

CLEVELAND
1108 Webster Ave. S. E.

WESTFIELD, MASS.



One of the machine shops of a prominent New England manufacturer showing one of the 55 Thermolier copper unit heaters.



Thermolier
the copper unit heater

Made in eight models to fit any space and every condition

—really costs less

A STOCK Thermolier unit heater was set up by one of New England's pioneer makers of machine tools and precision instruments, and put on test run. On the basis of this test run 55 Thermolier unit heaters were ordered and installed.

"We found by means of actual performance and condensation results," writes their engineer, "that the Thermolier actually would radiate more than sufficient heat to justify the added cost, and on this basis we purchased the Thermolier units."

Under actual working conditions Thermolier proved its higher capacity per dollar of cost in:

1. initial investment
2. expense of operation
3. adaptability
4. maintenance
5. depreciation

"There are several other items favoring the Grinnell Thermolier unit," the report read, "such as providing for suspending the unit, steam and condensation outlets and tappings for the proper pipe fittings in each case, so that a Thermolier unit can actually be installed for less money than other unit heaters not so constructed."

The variety of Thermolier installations in the various buildings of this manufacturer shows their flexibility of location. The 55 units throughout this plant are located in machine shops, company restaurants, locker rooms and storage buildings.

Fifty years heating experience in 5 cu. ft. One Thermolier weighing 200 pounds replaces two tons or 800 sq. ft. of cast-iron radiators or coil-pipes.

One-fifth the supply and return pipes. One-eighth the number of valves, traps, elbows, unions, etc.

You may care to study the Fourteen Points of Thermolier Superiority. Take the internal cooling leg, for example. It's right in the unit. And the return trap is square up against the heater itself. One ¾ in. thermostatic valve drains the unit perfectly without the usual outside cooling leg required with other unit heaters.

Booklet detailing these Fourteen Points of Superiority gladly sent on your request. And no salesman's call without your request.

Please attach to your business letterhead and mail today.

GRINNELL COMPANY

Executive Office: Providence, R. I.

Branches in all Principal Cities

14 Points of Superiority

GRINNELL COMPANY, INC.
305 W. Exchange St., Providence, R. I.

I want to read more facts about the Thermolier. Send along the booklet.

Name_____

Firm Name_____

Address_____

To Our Many Friends in the Plumbing Trade

We Wish You A Merry Christmas

And a Happy and Prosperous

New Year

IN extending to our many friends in the Plumbing Industry our greetings of the season, it is fitting that we also pay tribute to your Industry for the part it is playing in bringing about the high standard of sanitation of which America is justly proud. The American Brass Company is glad to be associated with your Industry, and in sincere appreciation of the support you have given Anaconda Products, we pledge a continuation of our efforts to embody the utmost quality in Anaconda Products and of our full cooperation and assistance not only during the New Year, but throughout the years to come.

THE AMERICAN BRASS COMPANY · MANUFACTURERS OF

ANACONDA BRASS PIPE

For every need!

For more than forty years Warren Webster & Company, pioneers of the Vacuum System of Steam Heating, have kept well in advance of the growing diversity of demand for heating service, with a Webster System specifically adapted to every individual heating need or problem.

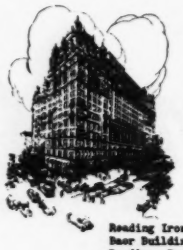
Today this standard—*a Webster System specifically adapted to every heating need or problem*—gains a new significance . . . Now you can select from *four* basic Webster Systems—each built to meet certain conditions; each a combination of service, experience, equipment and engineering methods varied to meet the heating requirements of the individual installation.

Be sure to see the newest developments in Webster Systems at the New York and Philadelphia Expositions.

WARREN WEBSTER & COMPANY
Pioneers of the Vacuum System of Steam Heating
CAMDEN, NEW JERSEY

Branches in 52 principal U. S. Cities
In Canada—Darling Bros., Ltd., Montreal

-since 1888
Webster
Systems of
Steam Heating



The Waldorf-Astoria
New York

Reading Iron Company,
Baer Building,
Reading, Pa.

Gentlemen:

The razing of the Waldorf-Astoria hotel has brought to my attention certain facts which may be of interest to you in regard to the durability and lasting power of Reading Pipe.

The brine tank in the Waldorf-Astoria was installed in 1896, and the original Reading Pipe which was put in at that time is still giving excellent service. These pipes were connected to York Compressors, made by the York Ice Machinery Corporation, the largest and best known manufacturer of refrigeration systems in the world. All indications are that the Reading Pipe would continue to give many more years of dependable service, were the building to remain.

In the steam heating system, the 12" header and branches under the floor and risers, installed at the same time as the refrigeration pipe, are also of genuine wrought iron, and these, too, are in excellent condition.

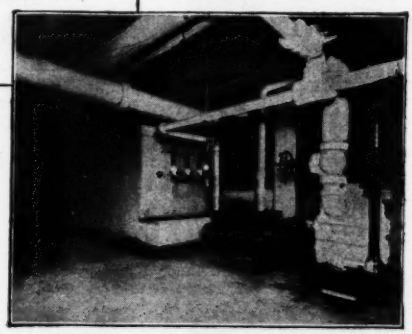
I can truly recommend Reading Pipe as having the ability to give reliable and trouble-free service over a great period of years in refrigeration installations.

Very truly yours,

E B Seligman

Chief Engineer, Waldorf-Astoria

ECS:LS



Outlasting a World-Famous Hotel

The Waldorf-Astoria—once the abode of notables from the four corners of the earth—is being torn down. But the Reading 5-Point Pipe, installed in its refrigerating system thirty-three years ago, is still good! Exposure to corrosive brine for more than three decades has not affected the pipe's usefulness!

Here is additional proof that Reading 5-Point Pipe outlasts the building in which it is installed, even when service conditions are unusually severe. Being made of Genuine Puddled Wrought Iron, the time-tested pipe material, Reading 5-Point Pipe means proved economy. For this there is no substitute.

READING IRON COMPANY, Reading, Pennsylvania

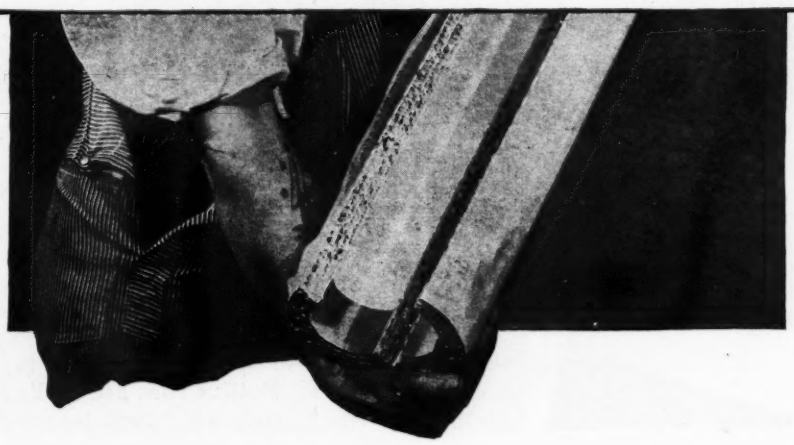
Atlanta · Baltimore · Cleveland · New York · Philadelphia · Boston · Cincinnati · St. Louis · Chicago · New Orleans
Buffalo · Houston · Tulsa · Seattle · San Francisco · Detroit · Pittsburgh · Fort Worth · Los Angeles · Kansas City

5 POINT PIPE
READING
GENUINE PUDDLED WROUGHT IRON

RESISTS CORROSION · HOLDS COATINGS · THREADS EASILY · WELDS BETTER · RESISTS VIBRATION

GENUINE PUDDLED WROUGHT IRON
READING PIPE
DIAMETERS RANGING FROM ⅛ TO 20 INCHES

You *know* who made it



. . . and so do your customers

IT makes no difference whether it is a fine motor car or a piece of pipe covering, people have been educated to look for the maker's name. Improved Asbestocel is a nationally known, nationally advertised and nationally sold heater pipe insulation, backed by the famous name of Johns-Manville. As you know, Johns-Manville is the foremost specialist in the manufacture of all varieties of heat insulations. The J-M trade mark is the logical one to look for on insulation. You can use Improved Asbestocel confident that every piece is uniform in quality and dimensions, and that it conforms to higher standards of efficiency than any ordinary air cell.

Because Johns-Manville is one of the most extensively advertised names in the country your customers readily accept Improved Asbestocel, and have greater confidence in you because you use it.

Johns-Manville
IMPROVED ASBESTOCEL

JOHNS-MANVILLE CORPORATION
New York Chicago Cleveland San Francisco Toronto
(*Branches in all large cities*)
Please send me complete information about "Improved Asbestocel."

*Name*_____
A-61-12

*Address*_____

CIVIC IMPROVEMENTS...

THE public park—the white memorial fountain—the new schoolhouse—projects that a community has slaved for, soon lose their glamour and beauty beneath a coating of soot. Boilers that are *really* smokeless are just as necessary—they are "civic improvements" too.

The sale and installation of a Richardson & Boynton Sectional Smokeless Boiler is not only a public spirited action—it is good business. Like all R & B products this one is conservatively rated and its special construction insures complete combustion of all fuel. With its Hot Blast, your customer can get efficient heat with the cheapest grades of coal. The fuel that usually goes up the chimney in smoke, goes through this system in the form of *heat.*

This company believes in utmost protection to the dealer . . . the logical link between factory and consumer.

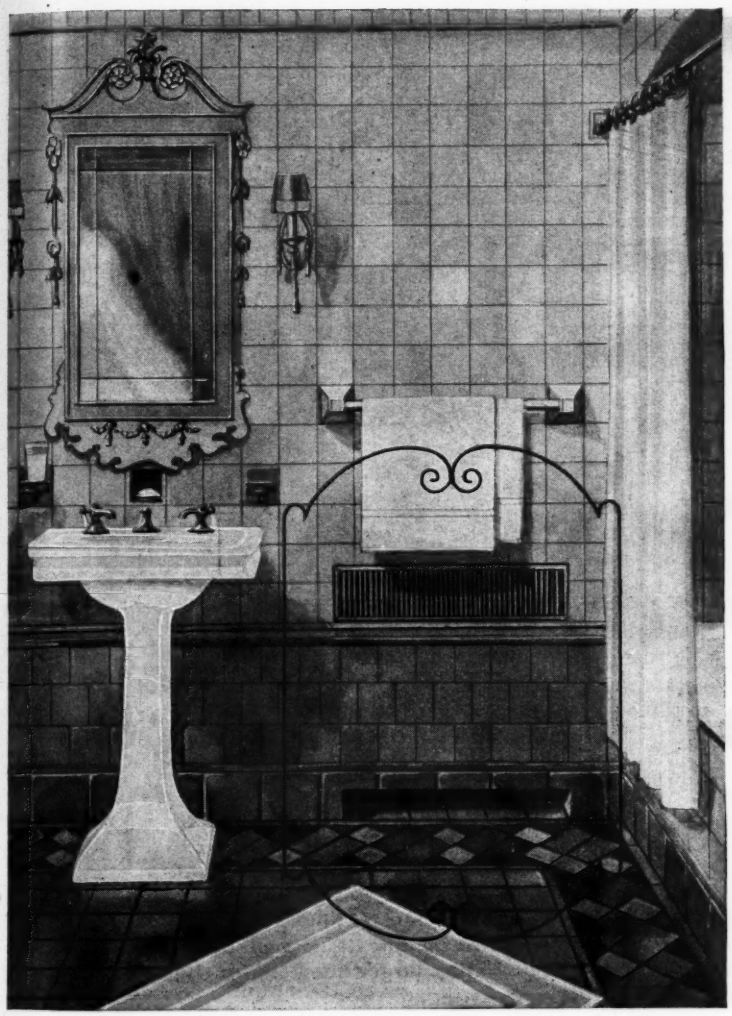
Modern installers know that good will is the keystone of successful business. A few R & B installations of this kind will bring you the good will not only of individuals but of the community as well.

RICHARDSON & BOYNTON CO.

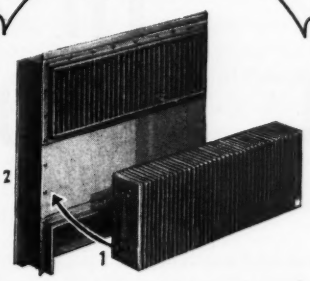
Manufacturers of "Richardson" "Perfect" Heating and Cooking Apparatus Since 1837

260 Fifth Ave., New York **Utica, N. Y.**

New York Utica Newark Philadelphia Boston Chicago Buffalo Minneapolis Cincinnati Detroit Providence



HERMAN NELSON
INDESTRUCTIBLE
RADIATOR
TRADE MARK



Radiator (1) comes installed in a steel case (2) more substantial than the wall itself. The complete unit is ready to install in any standard wall or partition.

New Comfort . . . New Beauty . . .
and new sales opportunities for you!

Today, countless thousands have come to view radiator heating in a new light.

Their dream of radiator heating without space wasting radiators that mar the beauty of richly furnished rooms, has been realized in the Herman Nelson Invisible Radiator.

This compact, modern heating unit fits inside any standard wall or partition—where it is forever out of sight and out of mind. It is leak-proof, rust-proof, silent, indestructible. Sealed permanently in a wall or partition, it never requires attention.

A Herman Nelson Invisible Radiator installation in your community will do for you—what it has for hundreds of other heating contractors everywhere. It will mean more and better contracts and bigger profits.

To learn the facts--send for book 36 giving complete information. The coupon below is for your convenience—send it today.

HERMAN NELSON *Invisible* RADIATOR

For Steam, Hot Water, Vapor or Vacuum Heating

THE HERMAN NELSON CORPORATION, MOLINE, ILLINOIS

Builders of Successful Heating and Ventilating Equipment for Over 20 Years

Sales and Service

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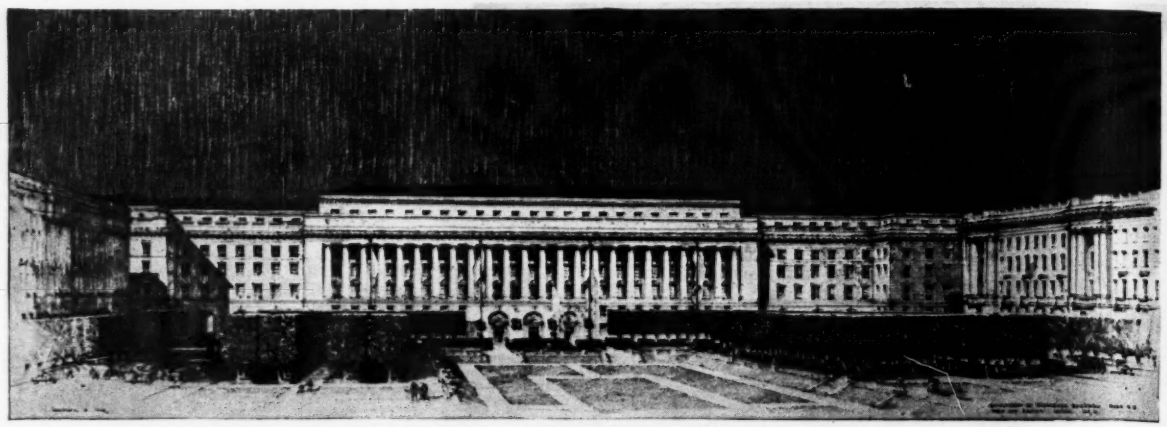
THE HERMAN NELSON CORPORATION
Moline, Illinois

Please send me the illustrated book No. 36.

Name .....

Address .....

City ..... *State* .....



In the New U. S. Department of Commerce Building

York and Sawyer, New York City, Architects, *associated with the supervising architects of the Treasury Department.*

•

The Loftis Plumbing and Heating Company, Atlanta, Ga. *Heating and Plumbing Contractors.*

•

The Noland Company, Inc., Newport News, Va. *Distributors of Bethlehem Pipe.*

This magnificent structure, soon to house the U. S. Department of Commerce, is but one unit of an extensive plan for beautifying the nation's capital and providing larger quarters for the various departments of the Government.

The new Department of Commerce Building is one of the great office buildings of the world. It is 1050 feet long—300 feet longer than the United States Capitol—and covers approximately eight and one-half acres of ground.

Bethlehem Steel Pipe is used in all the plumbing and heating systems of the Department of Commerce Building.

Bethlehem Steel Pipe is quality pipe—Pipe that you can use with confidence in the most important jobs, where the requirements are most exacting . . . Pipe that is as fine as can be made!

BETHLEHEM STEEL COMPANY, General Offices: Bethlehem, Pa.

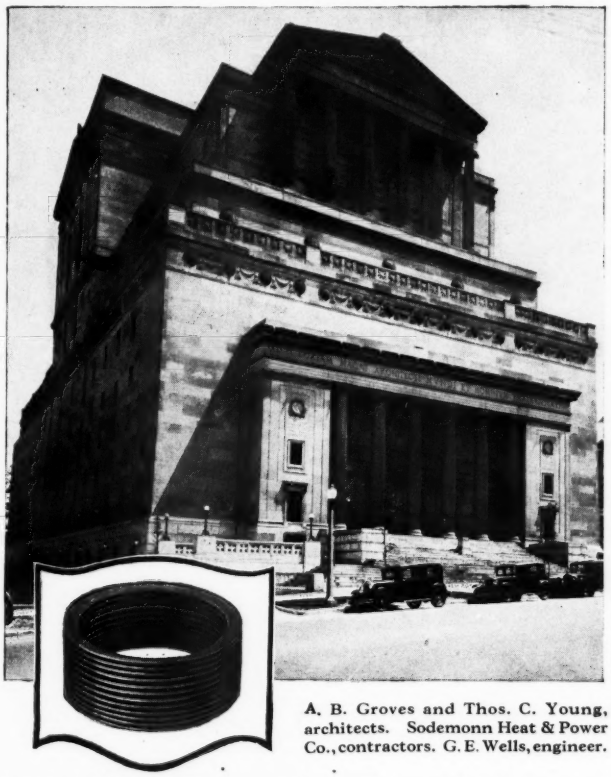
DISTRICT OFFICES:

New York Boston Philadelphia Baltimore Washington Atlanta Pittsburgh Buffalo Cleveland Detroit Cincinnati Chicago St. Louis San Francisco Los Angeles Seattle Portland Honolulu

Bethlehem Steel Export Corporation, 25 Broadway, New York City
Sole Exporters of Our Commercial Products

BETHLEHEM STEEL PIPE

This Beautiful Masonic Temple uses

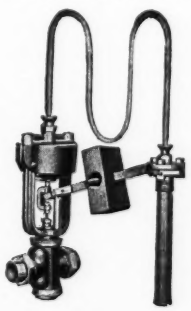


A. B. Groves and Thos. C. Young, architects. Sodemonn Heat & Power Co., contractors. G. E. Wells, engineer.

Every Sylphon Regulator contains as its expansion member the all-metal Sylphon Bellows which is drawn and formed without seams from a sheet of specially prepared metal. It is the most durable, flexible and sensitive expansion member known. Many scientific exacting operations are required to form this bellows with deep folds or corrugations which provide for smooth and quick response to any expanding or contracting impulse.

Sylphon No. 930 Temperature Regulator

At the right are shown two No. 930 Temperature Regulators installed on storage tank heaters in the Masonic Temple, St. Louis, Mo. These Regulators contain as their expansion element, as do all Sylphon instruments, the famous all-metal Sylphon Bellows, the one piece, solderless, flexible, and durable diaphragm, the most efficient expansion member known.



Write for Bulletin DT-125. No obligation.

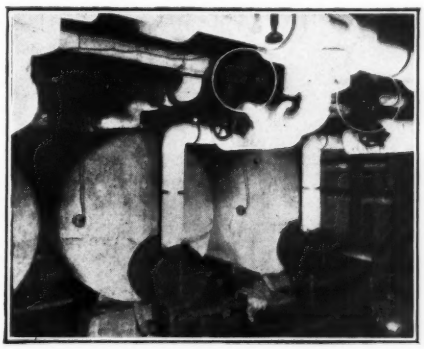
Sylphon TRADE MARK

Control

* * *

Because for more than 20 years, under all sorts of conditions and under varying circumstances Sylphon No. 930 Temperature Regulators have been faithfully and accurately performing whatever job they were set to do—they have been specified and installed in this magnificent Masonic Temple, at St. Louis, Mo.

The almost universal selection of the No. 930 Sylphon Temperature Regulators on the storage heaters in so many notable buildings, recently constructed or now under construction throughout the nation, is based upon demonstrated efficiency in countless installations . . . upon fact not theory . . . upon performance and not claims.



FULTON SYLPHON CO.
KNOXVILLE, TENN., U.S.A.

Representatives in all Principal Cities in U. S. A.—European Representatives, Crosby Valve & Eng. Company, Ltd., 41-2 Foley St., London, W. I., England—Canadian Representatives, Darling Bros., Ltd., 140 Prince St., Montreal, Que., Canada

SEE OUR CATALOGUE IN SWEETS

Whether Your Job Is Large or Small, It Will Pay You to Install Sylphon Dependable Specialties.

QUIET and ENDURING

A TAXLESS PROFIT

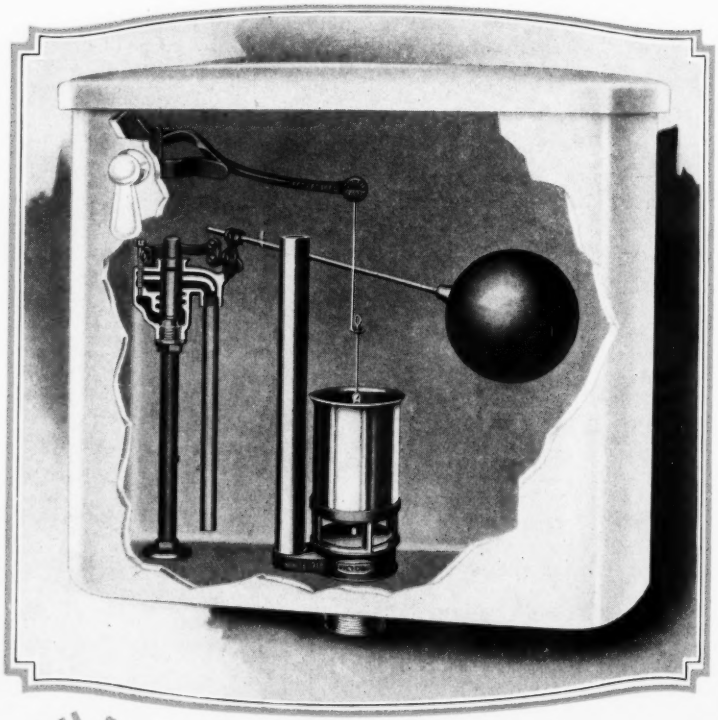
An installation profitable to plumber and customer alike

For the customer, no leaks, no hisses, no troubles (Curtin valves and ballcocks last a lifetime) just silent, efficient service.

For the plumber, a good profit, no losses from service calls and a very satisfied customer.

Specify and install the Curtin line. It pays.

A. F. CURTIN VALVE CO.
Medford :: Mass.



install CURTIN TANK NOISELESS FITTINGS

NATIONAL COPPER-STEEL PIPE

for soil, waste, vent lines and rain leaders

THE increasing number of specifications by architects and engineers for NATIONAL Copper-Steel Pipe in soil, waste, vent lines and rain leaders of large buildings, indicates the wide acceptance of this product as a means of securing greater resistance to atmospheric corrosion in these lines, or wherever pipe is exposed to alternate wet and dry conditions.

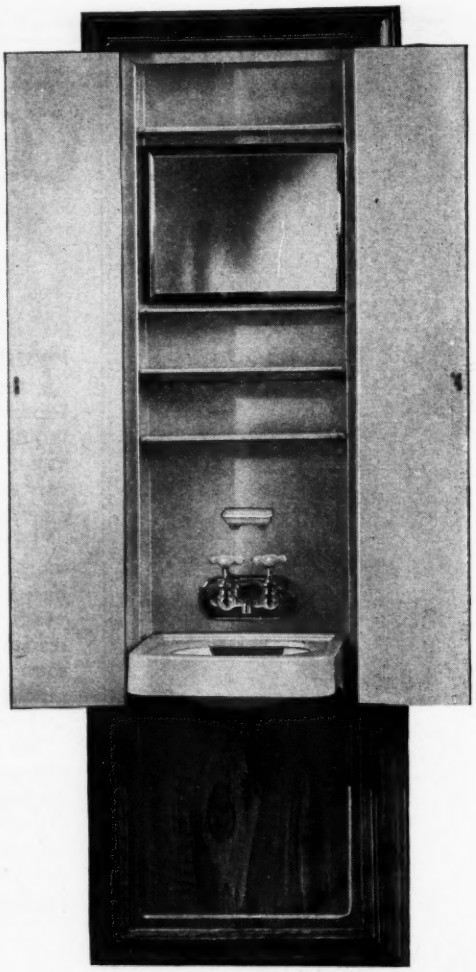
That the life of pipe in all such services can be greatly increased by using copper-steel is an established fact, based on tests and actual service records over many years. Therefore, copper-steel superiority for corrosion resistance is not a theory nor recent experiment, but a sound investment in the interest of prolonged life of pipe lines, less interruption to service in the building, and decreased costs of repairs or replacements.

NATIONAL Copper-Steel Pipe is the same high-grade steel pipe which architects and engineers have specified for many years, with the addition of a small percentage of pure copper, which thoroughly alloys with the highly refined steel, making it more resistant to atmospheric corrosion. To secure the benefit of the experience of pioneers in making this product, be sure to specify—

NATIONAL COPPER-STEEL PIPE
The Original Copper-Steel Pipe

NATIONAL TUBE COMPANY · Pittsburgh, Pa.
Subsidiary of United States Steel Corporation

The MURPHY *Concealed Lavatory* can be installed *in New or Old Buildings*

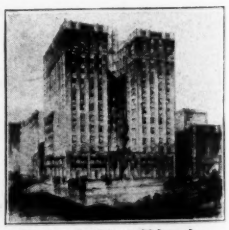


Murphy Concealed Lavatory Model "B" with doors open

100 North LaSalle Building, Chicago, Murphy Concealed Lavatories Installed

The Murphy Concealed Lavatory is not limited to new buildings. It can be installed in old buildings very easily. During periods when new construction is low you can still sell Murphy Concealed Lavatory. It knows no seasons . . . To you, a plumbing contractor, it offers a steady volume every month in the year. It gives you a good profit on every unit sold and an additional profit on installation work. It is not a competitive product. There's no haggling on price . . . To your customer, whether he owns a home, apartment, hotel or office building, the Murphy Concealed Lavatory brings the extra washroom facilities so badly needed at a very low cost and without requiring any floor space. In new construction the savings in floor space more than pays the complete installation cost. In one-family houses it not only saves space and brings the convenience of running water to every bedroom but also increases the value of the houses by much more than the installation cost . . . If you haven't a sample Murphy Concealed Lavatory on your floor, be sure to order one from your jobber. It will make many sales for you at a real profit and create many new customers. If you haven't had complete information on this new, modern, universally needed plumbing fixture, write us today. Murphy Door Bed Company, Plumbing Fixture Division, 923 S. Keeler Ave., Chicago, Illinois.

Hotel Baker, St. Charles, Illinois Murphy Concealed Lavatories Installed

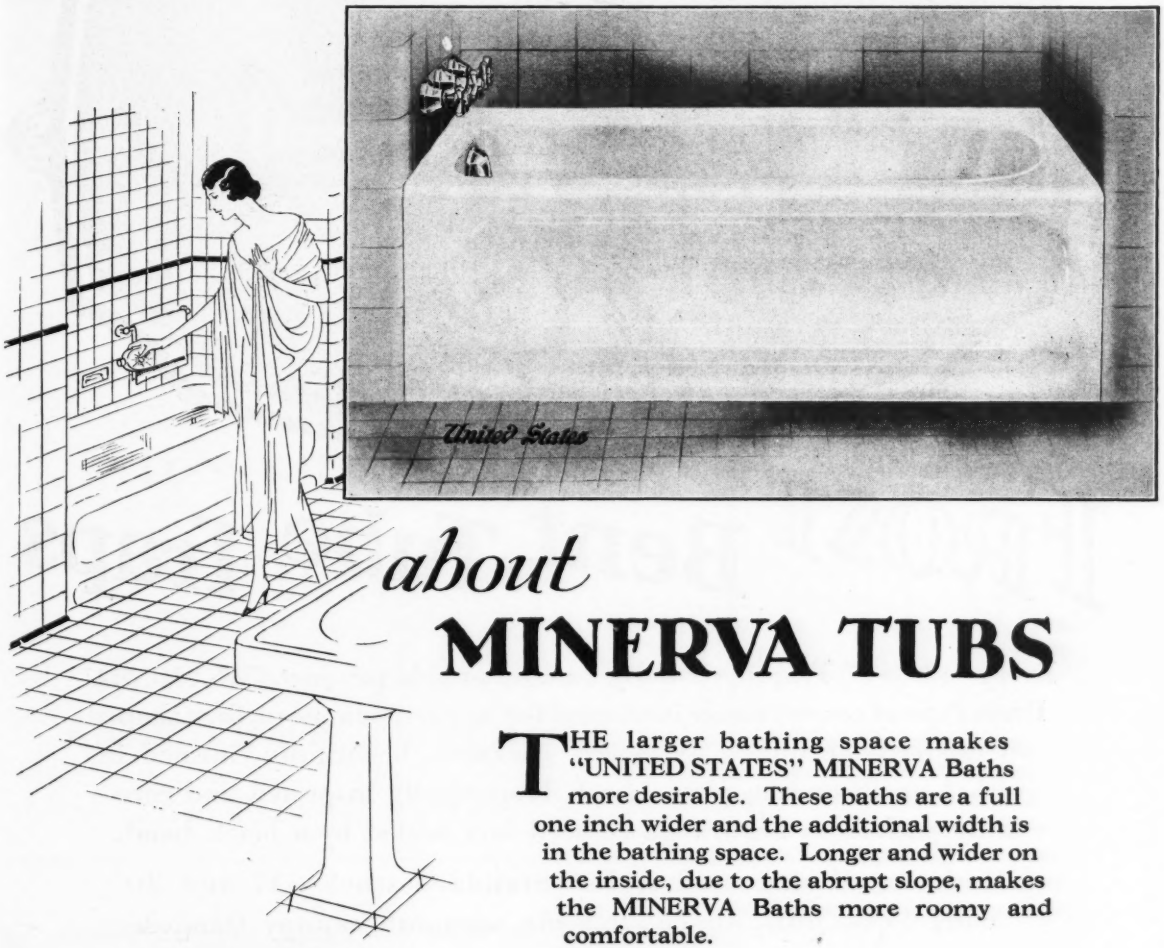


Bankers Building, Milwaukee, Wisconsin, Murphy Concealed Lavatories Installed

MURPHY *Concealed Lavatories*

There is something different

[COMPARISON WILL CONVINCE]



about MINERVA TUBS

THE larger bathing space makes "UNITED STATES" MINERVA Baths more desirable. These baths are a full one inch wider and the additional width is in the bathing space. Longer and wider on the inside, due to the abrupt slope, makes the MINERVA Baths more roomy and comfortable.

Minerva Baths can be furnished in several sizes for recess or corner installation.

"USANAR" Acid-Resisting Enamel can be furnished—and—if you prefer, there are twelve colors to choose from.

Our Catalogue on request.

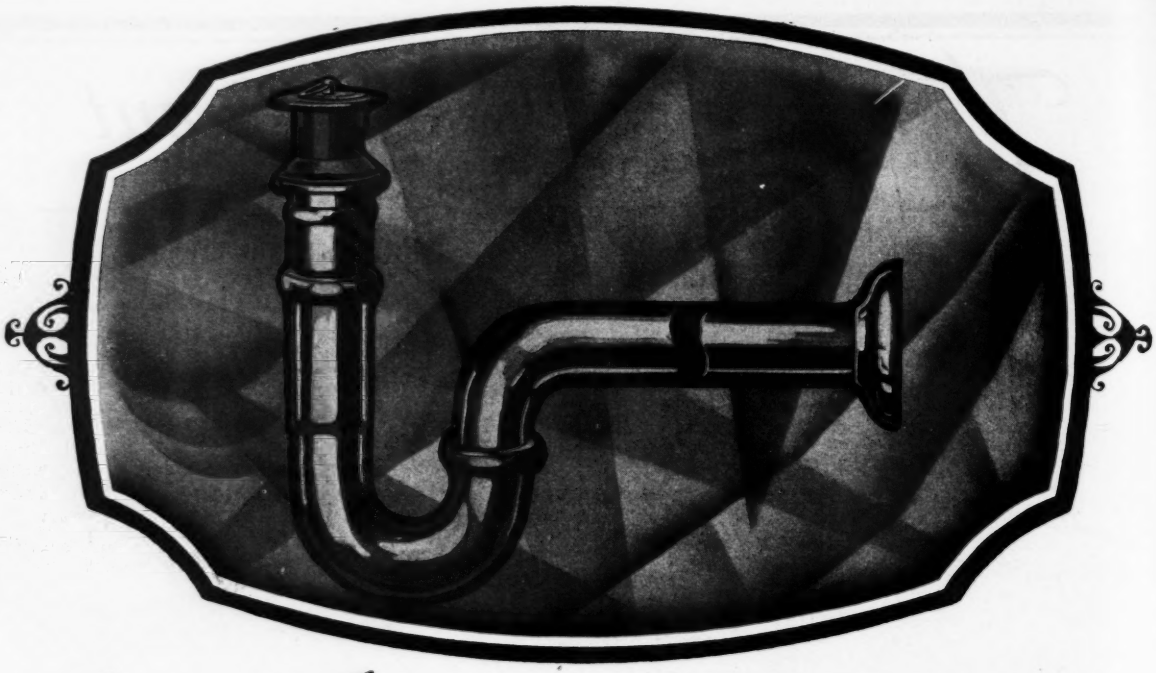
United States Sanitary Mfg. Co.

Pittsburgh, Pennsylvania

PHILADELPHIA
BOSTON

KANSAS CITY, MO.

NEW YORK
CHICAGO



FROST Bent Tube Traps

Every "FROST" Trap is virtually a custom-made product. "ANACONDA" Brass Pipe of correct gauge is selected for its particular need, then shaped on modern machinery by expert workmen, beautifully finished in nickel or chromium plate. Each Trap rigidly inspected and carefully packed in an orange colored box sealed by a black band.

Made in all sizes and styles. Standard stock—17 and 20 gauge, cast nuts, die-cut threads, sawtooth canopy flanges.

A Complete Line

"FROST" products include a complete line of plumbers' Tubular Brass Goods. Cast Brass, Bent Tube, and Anti-syphon Lavatory and Sink Traps, Bath and Lavatory Supplies, Tank Trimmings, Sink and Laundry Tray Connections, Slip Joint Nuts, Vent Tees, etc. All of dependable quality backed by a quarter century of "knowing how."

Your Jobber stocks "FROST" products

FROST CO.

KENOSHA WISCONSIN

THE
LONGEST RECORD
OF
ACTUAL SERVICE

is back of the materials that make Kaustine famous for QUALITY

KAUSTINE Septic Tanks are made of durable ARMCO Ingot Iron. And behind this pure iron is the "longest record of actual service of any low-cost, rust-resisting sheets and plates."

Moreover, ARMCO Ingot Iron has been advertised nationally for fifteen years. More than a million dollars has been spent to make your customers and ours know that ARMCO Ingot Iron in Kaustine Septic Tanks assures long-time resistance to rust and corrosion.

If Kaustine Septic Tanks were made of any material other than ARMCO Ingot Iron they could not be the dependable products they are. And you and your customers could not be sure that they would give long, reliable service — and most value per dollar invested.

Kaustine
SEPTIC TANKS

KAUSTINE COMPANY, INC., 112 MAIN STREET, PERRY, NEW YORK

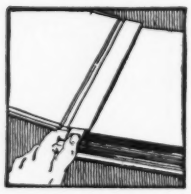
THE HANDY SPEEDLOK
Domestic Engineering Catalog Binder

Especially designed for the standardized catalog page adopted by the plumbing and heating industries

The SPEEDLOK is a quick operating catalog binder designed to fit reprints of catalog pages in "Domestic Engineering Plumbing and Heating Catalog" as well as all other catalog pages that conform to the standards adopted by the plumbing and heating industries.

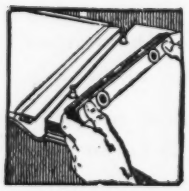
Easy and speedy operation are special features of this binder. A slight pull on the concealed bar under the top cover unlocks mechanism when sheets are inserted. Equipped with bar for removing sheets when changes are made.

Minimum capacity 1¼ inches. By simply unscrewing extension posts capacity can be extended to 2¼ inches. Works perfectly for all requirements—either a few sheets or filled to capacity.



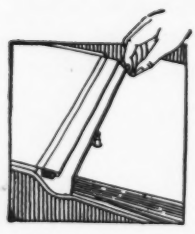
Covers are bound in heavy black Levant Grained Fabricoid, semi-flexible, very durable and attractive looking.

To unlock Binder—Pull out slide bar in top wing. Top cover will immediately fall back.



To lock Binder—bring top wing back over the posts—be sure posts fit in the holes in the top wing—then push in slide bar.

Separate the sheets where desired and slip sheets off the posts. Take out sheets or put in new ones as desired. These three moves take but a few seconds. Each operation is a natural one.



To increase or to decrease the capacity of the binder is a simple operation. The two posts are so constructed that they can be easily raised or lowered to meet the height requirements. Binder posts can be extended from 1¼ inches to 2¼ inches.

Price of binder—$3.00. Prices on quantities on application.

For Plumbing and Heating Contractors—

Many master plumbers and steamfitters assemble working catalogs from standardized catalog sheets filed in binders.

Domestic Engineering is in position to furnish without charge, upon request, loose sheets—which are reprints from catalog pages appearing in "Domestic Engineering Plumbing and Heating Catalog"— of several hundred manufacturers. They are standard catalog page size — 10⅝ x 8½ inches — are printed on a good grade of light paper and punched according to the standard adopted by the plumbing and heating industries. These sheets fit the SPEEDLOK binder.

For Jobbers' Salesmen—

The loose-leaf system reduces to the minimum the bulk and weight of catalog material required by the salesman. Only matter actually required for selling purposes need be carried in the binder. It does away with the necessity of carrying entire catalogs, booklets and circulars of various sizes and shapes.

Salesmen using the loose-leaf system have a great advantage over men not using this equipment—to say nothing of the added convenience, time and labor-saving features.

With a modernly equipped loose-leaf binder, the salesman can present his products in a more comprehensive manner than it is possible to accomplish by the old methods. Having all his material up to date in compact form and easily available, he can show latest specifications, answer questions or quote prices more readily.

When orders for binders are accompanied by requests for catalog reprints the binders will be equipped with the sheets desired and shipped complete.

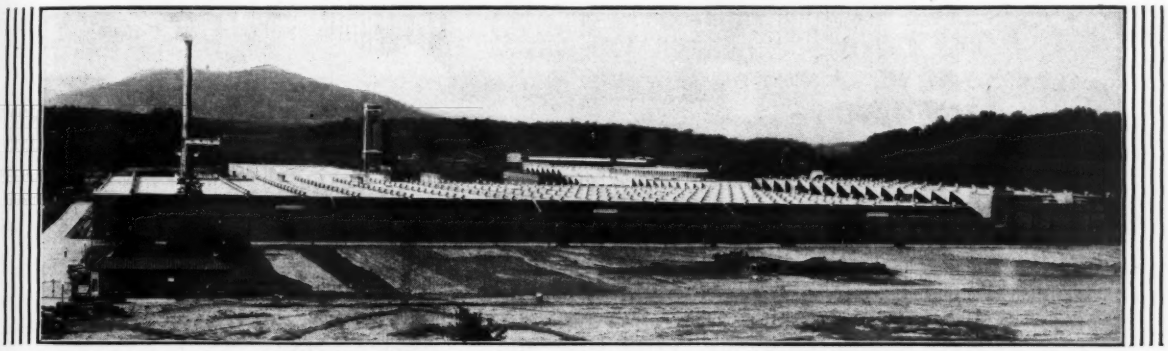
Write for full details regarding loose sheets and binders.

DOMESTIC ENGINEERING

1900 Prairie Avenue *(Catalog Department)* **Chicago, Illinois**

HOW WOULD YOU DRAIN A LARGE SAW TOOTH ROOF?

Josam Saw Tooth Roof Drains Effectively Solve Problem on One of Biggest Roof Jobs



The H. K. Ferguson Co., Cleveland, Ohio
Designers and Builders
The Lockwood-Greene Co., Boston, Mass.
Consulting Engineer
W. A. Arthur, Asheville, N. C.
Roofer
Ed. B Wright, Asheville, N. C.
Plumber
American Enka Corporation
Asheville, N. C.

THE unusual application of drains which was developed may prove valuable to you in the structure you are now planning.

Nearly 300 Josam drains were installed both inside and out of The American Enka Corporation to provide the building with proper drainage, but the real problem was to effectually drain the massive roof—and the new Josam Saw Tooth Roof Drain was selected.

Heretofore the setting of a Saw Tooth Roof Drain was a difficult and expensive task, owing to its extreme weight and bulk. Often it was necessary to add additional supports or roof framing to sustain its weight.

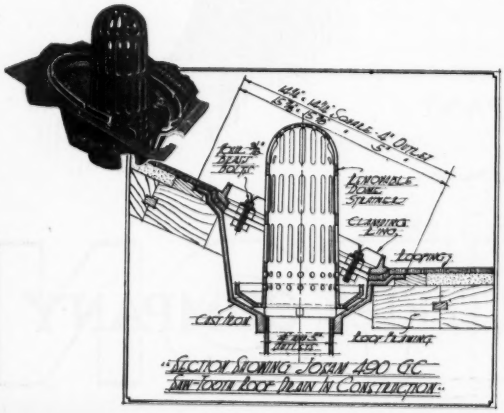
All this is now eliminated with the new Josam Saw Tooth Roof Drain. No tipping or tilting is necessary to have it line with the roof surface as its design permits its installation in any kind of Saw Tooth Roof.

Josam Drains give plumbers every assurance against drain failure—against unnecessary delay in the installation. Josam Drains have behind them an engineering staff that have geared the drains up to mechanical perfection. It is a general fact that plumbers who install Josam Drains are usually the leading plumbers in the community.

The Josam Catalog "G," which recommends hundreds of uses for Josam Products and shows their adaptability to all types of construction, will be sent to every plumber who writes for it.

The Josam "Roughing-In" Dimensions Booklet is another valuable book to have. This will also be sent upon request.

THE JOSAM MANUFACTURING CO.
4904 Euclid Bldg., Cleveland, Ohio
Factory, Michigan City, Indiana
Branches in Principal Cities



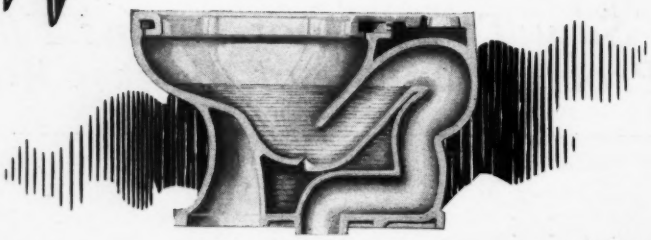
Josam Products are Sold by All Plumbing and Heating Supply Jobbers.

Josam TRADE MARK REG. PRODUCTS

The Josam Line includes: Josam Drains for Floors, Roofs, Showers, Urinals, Garages and Hospitals; Josam Swimming Pool Equipment; Josam-Marsh Grease, Plaster, Dental and Surgical, Sediment and Hair Interceptors; Josam-Graver Floor-Fed, Gas-Fired, Garbage and Rubbish Incinerators; Josam Open Seat Back Water Sewer Valves; Josam Open Seat Swing Check Valves; Josam Adjustable Water and Gas-Tight Closet Outlet Connections and Bends.

There Are No Substitutes for Josam Products

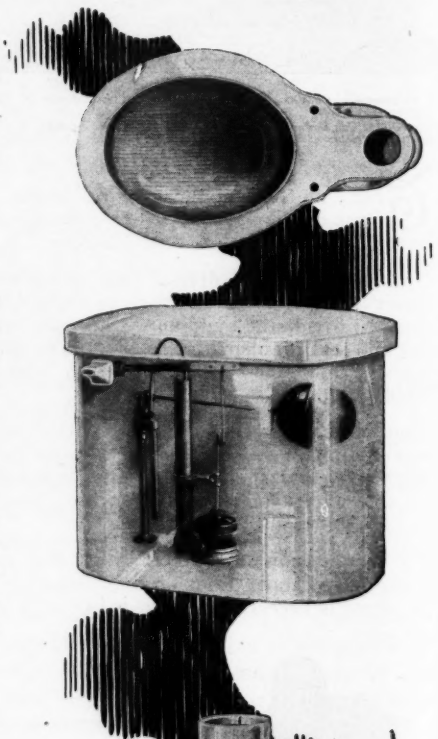
NEW—The Exwite WELLING



1 Unless a water closet is completely successful in flushing, it quickly becomes a source of trouble to the plumbing contractor making the sale. An outstanding feature of the Exwite Welling is its oversize outlet passage, insuring the passing of objects which clog most closets.

◆ ◆ ◆ ◆

2 Then the water surface; extra large and covering entire surface of bowl. With the strong, positive action of the Exwite Welling, the purchaser is assured a clean and presentable bowl after every flush.



◆ ◆ ◆ ◆

3 No better tank fittings are made. Very, very few combinations have assembled a combination of fittings to compare with them. They are as near trouble proof as such things can be.

◆ ◆ ◆ ◆

4 Then the China Connection. It removes the last trace of metal and, with the fine all-white seat, completes the picture of whiteness and cleanliness. Incidentally, this china connection is so constructed that the tightening of spuds is a simple matter.

Try one Exwite—one will convince you.

THE TRENTON POTTERIES COMPANY

TRENTON, NEW JERSEY, U. S. A.

National Showroom, New York City
101 Park Ave., Entrance on 41st St.

Branch Offices
Boston, Philadelphia, Chicago

Export Office, 115 Broad St., New York City

TRENTON

THE TRENTON POTTERIES COMPANY

Our Guarantee—We make but one grade of ware—the best that can be produced—and sell it at reasonable prices. We sell no seconds or culls. Our ware is guaranteed to be equal in quality and durability to any sanitary ware made in the world. The Te-pe-co trade mark is found on all goods manufactured by us and is your guarantee that you have received that for which you have paid.

No Whistles Gurgles Leaks

Have you tried the Sherwood Red Band Metal Seat? Made especially for bad water.

No matter what the city water pressure, Sherwood Ball Cocks close positively and without noise against it.

No whistles, gurgles or leaks in the tank that is equipped with the precision-built Sherwood. No customer complaints about water waste or embarrassment.

When you install a Sherwood—and every job, no matter how modest—can easily afford one, you've put an end to all the old ball cock faults.

Sherwoods are furnished with any size shank desired.

Ask your jobber about the Sherwood Ball Cock or write us direct for full information and prices.

SHERWOOD BRASS WORKS

Jefferson and Mt. Elliott Aves. **DETROIT, MICH.**

REPRESENTATIVES

J. A. Riordan Co. (Inc.), 1600 E. 7th St., Los Angeles
303 Colman Bldg., Seattle
E. S. Thompson, 2401 Chestnut St., Philadelphia
Fred G. Hoffman, 831 Edgewood Ave., Trenton, N. J.
Fred S. Wilsey, Plymouth Bldg., Minneapolis

QUIET, EFFICIENT OPERATION

NO ceaseless motor hum—no gurgles nor sucking sounds—no noises to tell him it's running—yet the Climax keeps his cellar permanently dry at a cost which is practically negligible.

This New Model Climax Cellar Drainer is designed for quick sales—easy installation—freedom from frequent adjustment and repair. Plumbers everywhere are recommending the New Model Climax—customer satisfaction is unconditionally guaranteed.

To-day—send for booklet, prices and discounts on this new profit building item. Take the bulk of the cellar draining business in your community.

Manufactured by the makers of the nationally known Climax Test Plugs for high or low pressure water, gas or steam lines and all types of pipe.

THE C. M. KEMP MFG. CO.

MANUFACTURERS AND PATENTEES

405-415 E. OLIVER ST.

BALTIMORE, MD., U.S.A.

Atlanta, Georgia—J. M. Butts & Co., 707 Georgia Savings Bank Bldg.
Philadelphia, Pa.—Derbyshire, Mack & Morgan, Inc., Delaware Ave., and South Street
New York City, N. Y.—Bookhout & Law, Inc., 331 Madison Ave.
Boston, Mass.—John J. Milliken, 314 Stuart St.
Cleveland, Ohio—John W. Stiles & Son, 700 Prospect-Fourth Building
Chicago, Ill.—Oscar C. Anderson, 1146 W. Lake St.
St. Louis, Mo.—W. F. Harper, 3733 Lindell Blvd.
San Francisco, Calif.—Wm. P. Horn Co., 58 Federal Street
Los Angeles, Calif.—Wm. P. Horn Co., 509 Wilcox Bldg.
Seattle, Wash.—Wm. P. Horn Co., L. C. Smith Building

No longer is home owning the drudgery it used to be—not in this age of domestic mechanics. Cleanliness and comfort is what the householder will pay for these days. That's just what he gets—his cellar is permanently clean and dry when you install his New Model Climax Cellar Drainer.

Sudden storms with their torrents of rain and snow hold no terrors for the householder when there's a new Model Climax Drainer in his cellar.

These are the reasons for the instant popularity of the new Climax Drainer.

Simple in Construction

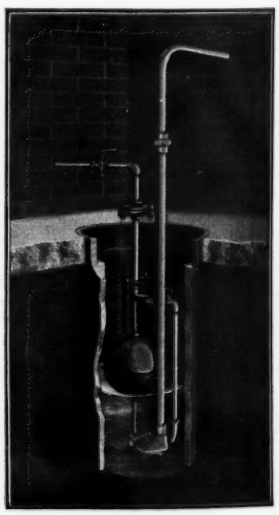
Easy to Install

Compactly Designed

No Adjustments

Efficient Operation

Most Economical!



Heresy then—

Business now

A FEW short centuries ago, they burned people at the stake for things less serious than trying to change the weather.

Modern science has shown Business how to make its own indoor weather—thereby promoting the health and efficiency of the worker—speeding and improving production processes—making homes more livable.

Heating, ventilating and air-conditioning have made their greatest strides during the past few years.

Visit this outstanding event—See for yourself how modern homes, offices, mills, mines and factories should be heated, ventilated, and air conditioned. Talk to specialists who will be in attendance. Keep step with progress! January 27 to 31st inclusive, at the Commercial Museum, Philadelphia, is your opportunity to examine, compare and select the newest and best for your particular needs. Remember the date. Don't miss it!

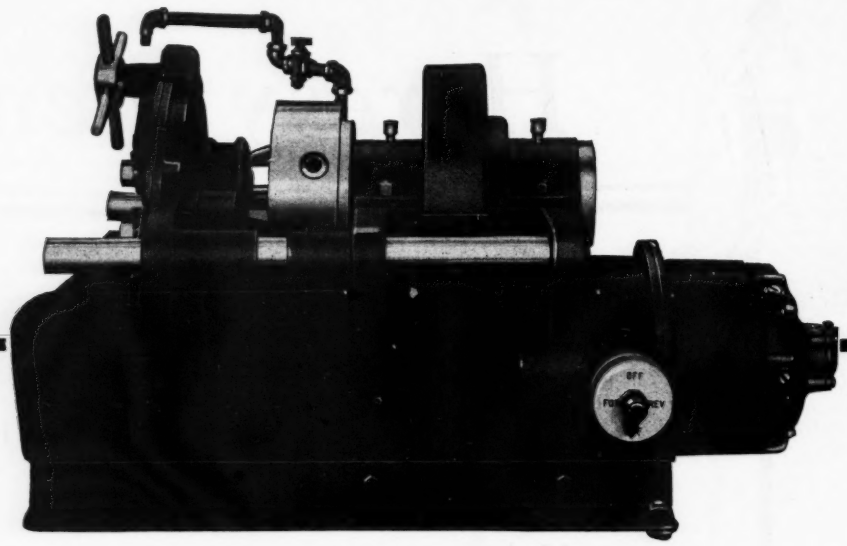
International Heating & Ventilating Exposition

Under Auspices American Society Heating & Ventilating Engineers

International HEATING & VENTILATING EXPOSITION Commercial Museum PHILADELPHIA

Commercial Museum, Philadelphia
January 27 to 31, 1930

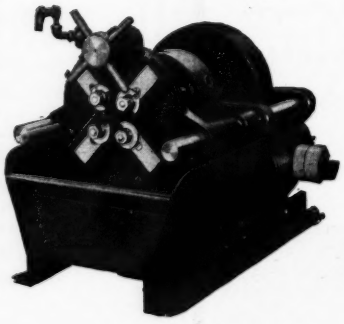
Management of International Exposition Co.
Largest Industrial Exposition Organization in the World 3715



THE NEW "TOLEDO" No. 999

IS PROVING ITS WORTH

The "TOLEDO" No. 999 has now been on the market for nearly 5 months yet we are still weeks behind in deliveries. Proof in itself of the remarkable success of this new ½-inch to 2-inch portable power pipe machine. Simple in design, rugged and sturdy, easy to operate. All of these points vouched for by the hundreds of enthusiastic owners. Many contractors are already the owners of two or more of these machines.



Have you investigated this new sensational pipe machine? Drop us a post card and we will be glad to send you full particulars and show you how it will help you in your work.

THE TOLEDO PIPE THREADING MACHINE CO. **TOLEDO, OHIO**

NEW YORK OFFICE, 72 LAFAYETTE ST.

Net Price Complete **$275.00**

[WEST OF ROCKIES—$288.75] F. O. B. TOLEDO, OHIO

DOMESTIC ENGINEERING
Plumbing & Heating Contracting and Merchandising

Vol. 129, No. 6
Whole No. 1906

Chicago, Illinois
December 14, 1929

OBSERVATIONS

Intensive Merchandising

A financial journal cites a report recently made by the National Association of Credit Men which has a double interest for our industry. The report has to do with a trend which the association notes in current distribution methods and will undoubtedly carry some authority as the observation of an organization interested in business as a producer of profits.

The trend which the credit men note is toward a more intensive working of markets taking the place of the tendency to reach out after new markets before a thorough job of coverage has been done in those close at hand. Apparently the publication of the report was occasioned by the fact that one of the great chain store organizations has decided to terminate its policy of yearly expansion; although the trend is also noticeable in other fields.

Chain Store Problems

The check to the chain store idea has some interest to our field as indicating that the highest point in the wave of expansion in that field has probably been reached and that, from this time forward, there will be less of a tendency on the part of the chain store people to found stores without more thorough study. It is obvious, from what one may read, and from some contacts, that the chain store interests have reached the necessity for studying retail store operation more carefully than they have to date. Such a fundamental matter as the authority to be granted the individual store manager is being experimented with; doubtless there are other problems about which we, who are not in the confidence of the chain store people, do not hear, but which are beginning to limit the mushroom-like growth of such enterprises.

DOMESTIC ENGINEERING editorials long ago pointed to the fallacy in the belief that new markets could alone guarantee growing and profitable volume. We have insisted that intensive rather than extensive marketing held the answer to the perfectly natural desire for increased business.

Expansion means expenditure of capital. New markets can not be conquered, any more than new plants can be built, without an investment of capital. And, just as it is most desirable if the manufacturing production of a company can be increased without adding to plant accounts, so is it desirable if sales production can be increased without the additional sales expense involved in the opening of new markets. There is a time proper to such expansion, of course; but that time does not come economically until present markets have really been consolidated.

Expansion and Capital

This problem of intensive as against extensive merchandising is one which runs through the entire industry. The plumbing and heating contractor who is reaching out for bigger work; the wholesaler who is reaching out for more territory; the manufacturer who is adding new products or attempting to blanket the country—any of these attempting to put through a policy of expansion before a reasonable level has been reached in present sales production, on a basis providing the capital for expansion, is following what the Department of Commerce has called "the current illusion."

Going 'Round the Heating Contractor

The search for volume, and the vast expansion of manufacturing capacity have had the effect of causing some manufacturers in our industry to seek outlets for heating materials other than the heating contractor.

The first instance which springs to mind is, of course, the oil burner. Naturally, with a condition which can only be described as ridiculous—some nine hundred or more makes on the market at one time, almost all of them in the experimental stage—the heating contractor took his time about deciding upon the matter. The result was that some of those who had good burners looked to other means of distribution. And the result of that action, and the installation of burners by groups which knew nothing whatever about heating, was to discredit the oil burner with a large section of the public and so put a drag on the development of the industry as a whole.

A Mistaken Policy

Two other items of heating equipment are making their appearance in some sections of the country through channels other than the heating contractor. Coal dealers, finding the competition of the oil burner cutting into their business, have sought to counter-attack by

taking on one or another of the small domestic stokers and a type of damper regulator.

We believe these are cases where the longest way 'round is short-sighted. When the home owner arrives at a point where he considers taking out the old coal-burning heating plant, it is usually because it has become unsatisfactory in one way or another. Either he has progressed to the point where he no longer desires to have to attend personally to the heating plant to such a large degree as is usually necessary, and wants to relieve his wife of that necessity; or he has found that the heating plant has lost something of its efficiency.

In either case, there is danger that he will be dissatisfied by the performance of the stoker or the damper regulator, not because they are not correctly designed, but because they may be improperly installed or may be installed in a heating plant which needs more fundamental changes in order to restore its efficiency. The result will be that the equipment will be blamed for failure when that failure might better be attributed to the installation or to the heating plant's inefficiency itself.

Taking the Blame

With the heating contractor, the first consideration is efficient performance of the heating plant as a whole, because it is on this total performance that his reputation and good will depend. Before he installs a piece of special equipment, he will make sure that the heating plant is in good shape. The unanimous statement to be had from heating contractors handling oil burners is that they will not make a sale where they feel that the heating plant is incapable of handling the job expected of it without correction.

This should be a matter of prime consideration to the manufacturer of any product which is to be added to existing heating plants. A practical view of the situation will lead such a manufacturer to distrust a channel of distribution which, even though it promises widespread outlets, is not by training or experience fitted to give his product a fair chance to operate efficiently.

Such a distribution can only mean that there will be widespread centers of dissatisfaction, operating to his disadvantage in making further sales; and in the long run his total sales will be less than they would be had he followed conservative practice and marketed his product through men who are trained in heating.

Educational Effort Pays

One of the most successful of modern experiments in the study of products and the spreading of the information so gained by educational efforts, has been conducted by the group which is devoted to the "advancement of flat rolled steel products." In its official bulletin recently it carried a brief editorial, headed: "Education Slow But Effective." Our own observation is that this group has done not only an effective job, but has done it in a relatively short period of time. Eight or ten years is not a long period in the life of an industry—and it is surely a brief period in which to make such educational advances that the public is made aware of the products of the industry to such an extent that its markets are rapidly enlarged and the uses of its products multiplied.

We do not believe that the plumbing and heating industry has as yet done a good job along educational lines. We believe that once the task is taken up constructively and consistently, there will be an increased respect for the industry and, what is more to the point, an increased demand for its products.

Education Needed

Just at the present time a ready-made opportunity is presented to the industry in the Health Conservation contest being conducted by the United States Chamber of Commerce. It will extend over a number of years; and a number of local chambers of commerce have already entered the contest. The idea is to submit a report at the end of each year, and the city which shows the greatest advance for the year in matters of health and sanitation will receive a suitable award.

If the local chamber of commerce in the city of any reader of DOMESTIC ENGINEERING has not yet entered this contest, we believe it will be to the interest of the individual master plumber in that city, or of the local association, to call upon the head of the chamber of commerce and seek to interest him in the matter. If the local chamber has entered the contest, the local master plumbers ought to be on some of the committees.

Once the contest is under way, there will be innumerable opportunities for the local plumbing contractors to help push it along, to secure the correct plumbing laws, to correct bad sanitary conditions, and to focus the attention of the community on these matters in a way that can have but one result—the sale of more plumbing goods.

A Remarkable Opportunity

The participation of the master plumber in this Health Conservation contest has the hearty approval of the board of directors of the national association, which passed on the matter at its recent meeting in Boston.

Will the industry take hold of this opportunity? Upon the answer to that question depends whether or not it will enjoy the full benefits of a plan, offered ready-made, by a body which is accustomed to doing things successfully and in a big way.

Christmas

Tremendous sums of money from Christmas savings . . . . . the generous spirit of the season . . . . . the problem: What to give? . . . . . All going to make up a sales opportunity of some magnitude for the plumbing and heating contractor. Let the windows of the industry carry a Christmas message for the next eleven days.

Drinking Water Systems

—*methods of distribution*
—*estimating the capacity*

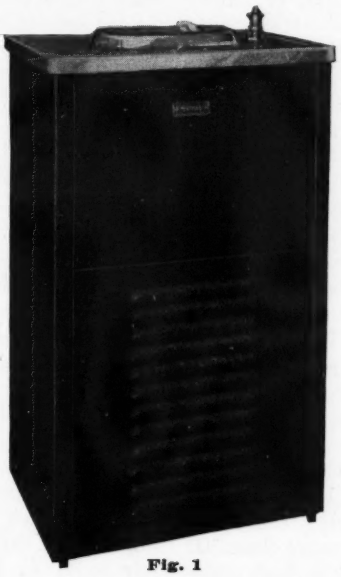


Fig. 1

By M. T. BULLEN

THERE are four methods used in distributing refrigerated drinking water. Which of these to use on any given job depends upon:

First, the type of building,

Second, the number of persons to be served,

Third, the relative position of the drinking fountains to each other.

Fourth, the facilities for piping the building,

Fifth, the quantity of water desired per hour at each fountain.

Individual Cooler Method

One of the simplest and most effective methods is the use of individual coolers, each complete with self-contained refrigerating units. These coolers vary in size according to the capacity required and the physical dimensions of the compressor housed within the cabinet.

The advantage of this method is that each drinking fountain is a complete refrigerating unit and drinking fountain within itself. If one is out of repair it does not affect any of the other units. The entire cooler is more or less portable, two types of which are shown in Figs. 1 and 2.

The only thermal losses sustained are those inherent in the cooler and compressor. As no refrigerated water is piped away from the cooler, no losses occur in the piping. This permits the full rated capacity of the compressor to be delivered in the form of chilled water and no compensations are required to absorb thermal losses in pipe lines. Any building that extends over a large area, such as a steel mill, railroad shop, large auditorium, or any building where the drinking fountains are a comparatively long distance apart would indicate individual coolers as being advantageous.

One objection to this system is the amount of floor space required that might be used to better advantage, or the fact that the building is such that it lends itself better to a circulating system.

Circulating System of Distribution

Circulating Systems (See Fig. 3) are adapted to multiple story buildings, where the drinking fountains are comparatively close together, one above the other on the various floors. This permits the use of one large cooler set in the basement, or in the pent house with the compressor either housed in the same cabinet or set remote from the cooler as conditions demand. The flow line is piped away from the cooler, usually in a vertical riser, and carried to the last drinking fountain and then returned to the cooler through a return line. Drinking fountains may be connected to either the flow, or return as required. Circulation is maintained with a small centrifugal pump operated by a small motor as is indicated in Fig. 4. Both the flow and return lines, also any branch lines, must be thoroughly insulated with the best ice water covering. Cork is to be preferred, and it is better to use 2-inch cork known as brine thickness, rather than 1-inch cork known as ice water thickness. The additional cost of better insulation is more than compensated for in a smaller and less expensive compressor. The thermal losses in these lines frequently equal or exceed the capacity required to cool the water. The better the insulation the fewer the losses involved. Therefore a smaller machine can be used and it will run fewer hours, in this way reducing the power consumption.

In any event never use any insulation which is absorbent, as it will gradually fill with moisture and is rendered useless. Generally speaking, steam pipe covering is not suitable for insulating refrigerating lines.

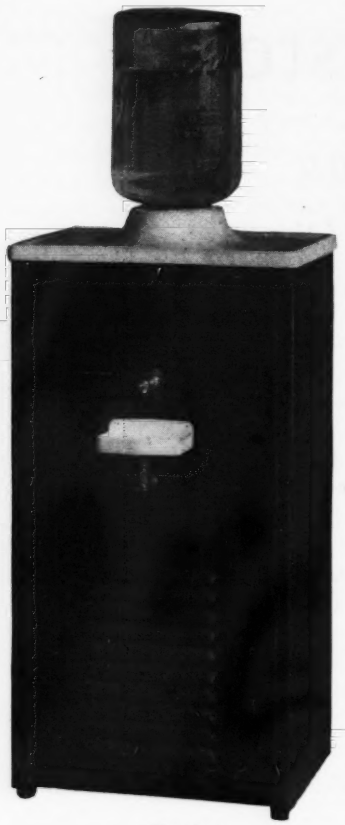


Fig. 2

A circulating system is the most complicated of the four methods under consideration and requires more detailed consideration. The circulating lines should be large enough to minimize the frictional resistance, permitting the smallest pump and motor. The size of pipe used is dependent upon the number of lineal feet required, kind of pipe, and number of bends. As a general thing it is best to use nothing smaller than ¾ inch pipe in circulating systems and if the total length of the flow and return exceeds 200 ft. it is better to use 1-inch. In jobs with more than 500 ft., 1¼ inch pipe should, as a general rule, always be used.

The velocity in the lines should not exceed 3 ft. per second, and in one complete circuit, from the time the water leaves the cooler until it returns, the drop in temperature should not exceed 5 degrees Fahr. In the closed circuit two pipe system, which is generally used, no gravity head need be considered in figuring the pump size as the two columns of water balance each other. However, the frictional resistance in both the lines and in the cooler must be considered, together with the water consumed and wasted and the amount of water circulated per minute in the system.

Correct Estimate of Demand Important

It is quite important to estimate correctly the requirements and losses in figuring a circulating job as it is impossible to select a cooler or compressor until these are known. Much trouble and disappointment has resulted because of guess work on this point. The process for arriving at these values is not difficult and will be discussed later.

Circulating systems are often the cheapest and best installations where conditions lend themselves to their use. Again they are often installed where one of the other three methods would be better and more economical. Each water cooling job is a different problem and should be separately considered upon its merits to give the best service at the least cost. Generally speaking multiple story buildings, such as office buildings, department stores, textile mills, hotels, and small manufacturing plants lend themselves to circulating systems.

Non-circulating or Dead End System

Another system as an alternate to a circulating job is the non-circulating system or dead end system. (See Figs. 5 and 6.) This system is rarely justified because of excessively high losses and low efficiency. However, there are conditions where it can be used to advantage. This occurs in multiple story buildings where two or three drinking fountains are required on separate floors one above the other, and where comparatively few persons are to be served. The lines must be short, and the cooler should be set where the fewest persons are to be served. Short extensions from the cooler to near-by locations on the same floor are also quite common.

Unlike a circulating job, the piping extending from the cooler should be as small as possible. One quarter inch tubing is sufficient. This tubing should be insulated to prevent the water in it from taking on room temperature for as long as possible. It is quite common practice to use ¼-inch copper tubing slipped through a flexible loom such as electricians use. This is effective and inexpensive. If the cooler is located where the lightest demand is, these few will drink direct from the cooler which always delivers cold water, while the larger number drink from the fountain supplied by the tube. The tube being small is quickly drained, giving water direct from the cooler, and as the larger number of persons use this fountain, water is not permitted to stay in the tube very long. A ¼-inch tube is large enough to supply any bubbler under pressure.

This type of installation is more or less of a makeshift and is only justified where the requirements are so small that it would be too expensive to install any other system.

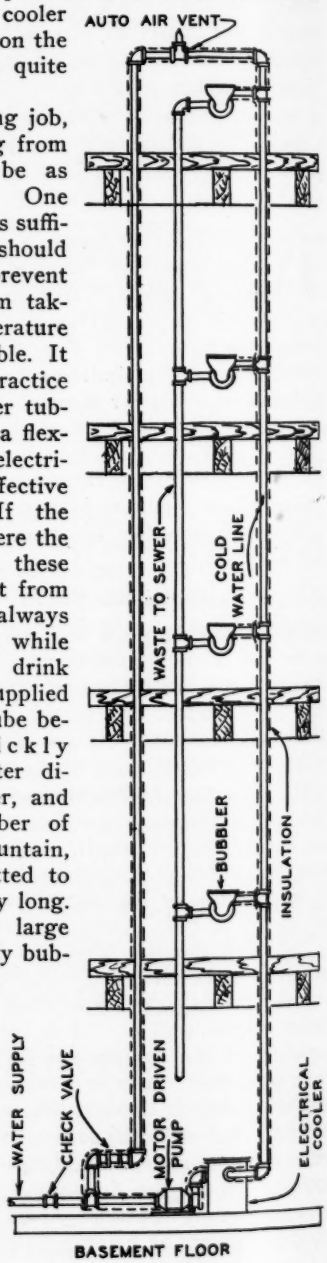


Fig. 3

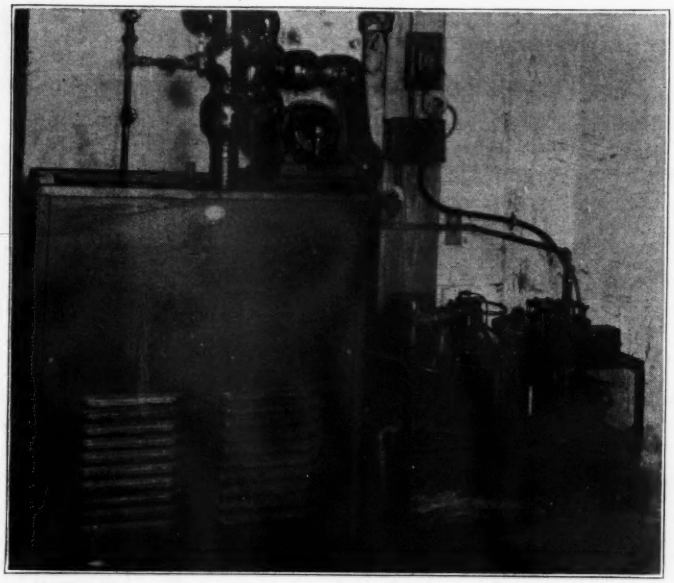


Fig. 4

The Multiple Hook-up System

Where conditions and city ordinances permit, the multiple hook-up system is frequently used. It is highly efficient and lends itself very well to conditions where a limited number of coolers are to be connected to one compressor (See Fig. 7). This system consists of one cooler and one drinking fountain at each location, combined to form one single unit in the system, the cooler to be equipped with a flooded type cooling coil, using a float valve, and the several coolers all connected together with the refrigerant gas lines from the compressor.

This system cools all the water at the point of consumption and the thermal losses are very slight compared with a circulating job.

The number of coolers connected in this way is limited by the size of the compressor. Usually the number runs from two to six.

The height to which the gas lines may be extended is approximately 80 ft. depending upon the type of condenser used, which in turn determines the pressure on the lines. It is practical to extend the gas lines horizontally to a distance of 200 ft. or more.

Venting of Gas Lines

The gas lines are generally ¼-inch tubing for the liquid refrigerant supply and ½-inch tubing for the gas refrigerant return. These lines should be incased in conduit and properly ventilated, so that any possible refrigerant gas leak may be carried to the outside air.

This type of installation is quite desirable in locations as described above, and the only real objection is the rather remote possibility of refrigerant gas leaks, which might escape into the building and cause danger or discomfort to the occupants. There are a few cities which prohibit this type of installation.

Figuring a Water Cooling Installation

The first thing to know when figuring a water cooling job is the amount of water it will be necessary to refrigerate. This includes the amount used and also the amount wasted. The human equation enters here very largely, as some persons drink much more water than others and some waste much more. The answer to this question will necessarily be somewhat empirical because of this difference in people. Environment also has a large bearing upon the amount of water drunk by any person. If a man is working hard in high temperatures he will require twice as much water as an office man working at a desk. For this reason the amount of water used will depend largely upon working conditions. It has been determined by observation that the average person drinking from a bubbler will waste as much water as he drinks. To estimate the amount to be refrigerated it is therefore necessary to multiply the estimated consumption by two since the refrig-

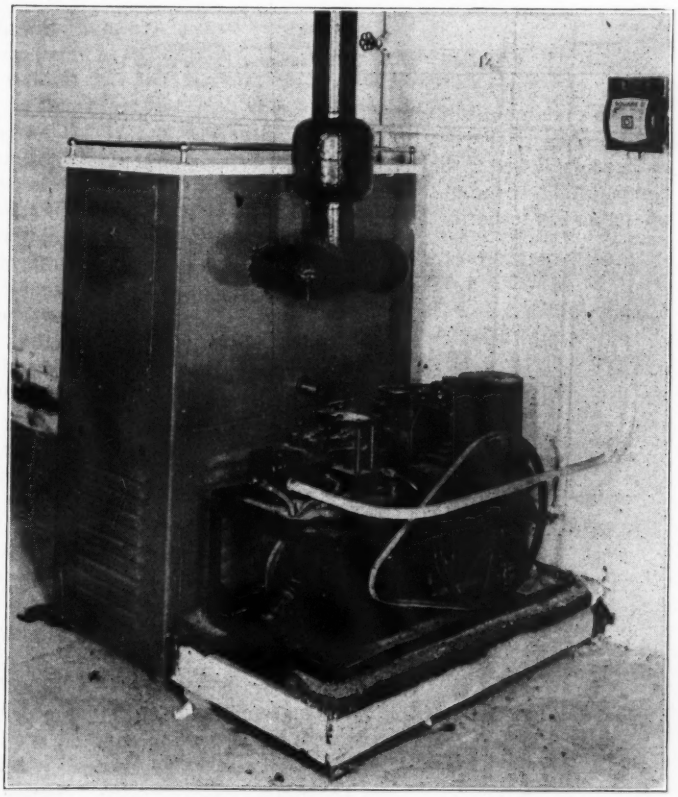


Fig. 5

erator cools all the water which is furnished at the bubbler regardless of whether the drinking water is consumed or whether it is wasted through the drain.

The first person on record who made a study of the amount of water used under various conditions was Dr. Watson of Cincinnati, Ohio. He compiled this information into a table which has since been confirmed by numerous others interested in the subject and also enlarged to include situations not contained in the original Watson table. The table given below includes all the water to be refrigerated both used and wasted.

Table I

Class of User	Proper Temp. of Cooled Water	Amount of Water Used and Wasted
1. Office Bldg.—		
Employes	50° F.	1 gal. of water per day per person
Transients		1 gal. per each 250 transients per day
2. Light Mfg.	50° to 55° F.	1½ gal. per day per person
3. Heavy Mfg.	50° to 55° F.	2 gal. per day per person
4. Restaurant Table Service	45° to 50° F.	1 gal. per each 10 persons served
5. Cafeteria Service	45° to 50° F.	1 gal. per each 12 persons served
6. Hotels	50° F.	1 gal. per day per room
7. Theaters	50° F.	1 gal. per hour for each 75 seats
8. Retail Stores—		
Employes	50° F.	1 gal. per day per person
Customers		1 gal. per hour for each 100
9. Schools	50° to 55° F.	1 gal. per day per student
10. Hospitals—		
Employes	45° to 50° F.	1 gal. per day per person
Patients		1 gal. per day for each 12 beds

With the amount of water to be refrigerated known and number of degrees it is to be cooled, the amount of heat in B.t.u. to be extracted can very easily be determined. If individual coolers or a multiple hook-up system is to be installed, it is then simply a question of selecting the water coolers and the refrigerating machinery that will extract that amount of heat in a given period of time, according to the needs of the job. This can be determined from the catalogues furnished by the various manufacturers. If, however, a dead end system is to be installed it will be necessary to figure the thermal losses in the piping and add them to the B.t.u. extraction necessary to cool the water. The machinery and cooler then selected must have a capacity equal to the total B.t.u. extraction.

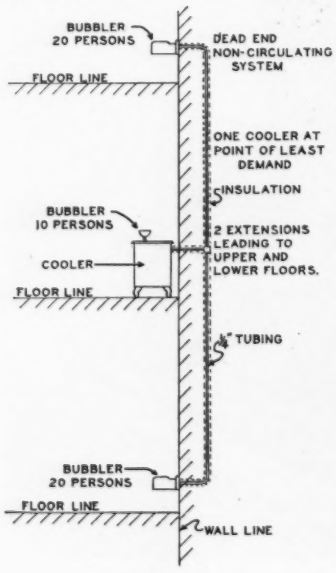


Fig. 6

Figuring Circulating and Dead End Systems Similar

When a circulating job is to be used we must figure the same as for a dead end system and then compute the proper size circulating pump and motor to use.

This is not nearly as complicated as it sounds. In fact, it is quite simple. To refresh our memories we will here state the definition of a B.t.u.

"One B.t.u. is that amount of heat necessary to raise (or lower) the temperature of one pound of pure distilled water 1 degree Fahrenheit at sea level."

We will, for practical purposes, ignore whether the water is distilled or whether it is at sea level as it will make no difference in our problem. After we have determined the amount of water to be cooled we would apply the following formula to determine the B.t.u. extraction:

B.t.u. = s w (t-T).

w = Weight of water in pounds.

t = Original temperature at tap or source.

T = Final temperature as desired.

s = Specific heat.

Specific heat is defined as that amount of heat necessary to raise one unit of weight one unit of temperature.

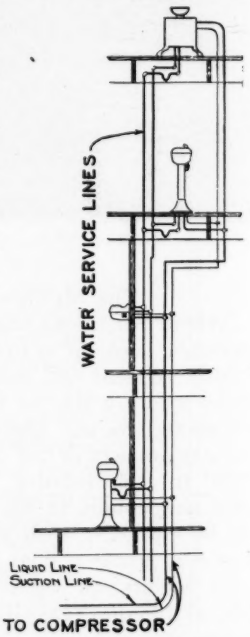


Fig. 7

Example: It requires 0.5 B.t.u. to raise one pound of petroleum 1 degree Fahr. Therefore, the specific heat of petroleum is 0.5.

All materials differ as to their specific heat, but water is taken as the unit. Therefore, the specific heat of water is 1 and all other substances, whether they be gases, liquids or solids have a specific heat that is a fraction.

As the specific heat of water is 1 then we can express our formula as follows:

B.t.u. = w (T-t) for heating.

B.t.u. = w (t-T) for cooling.

If we are figuring the amount of water in gallons as per the U. S. Bureau of Standards the w will always be 8.3 pounds per gallon. As an example we have incoming water with a temperature of 80 degrees Fahr. and we wish to cool 15 gallons per hour to 50 degrees Fahr. Our problem resolves itself into the following:

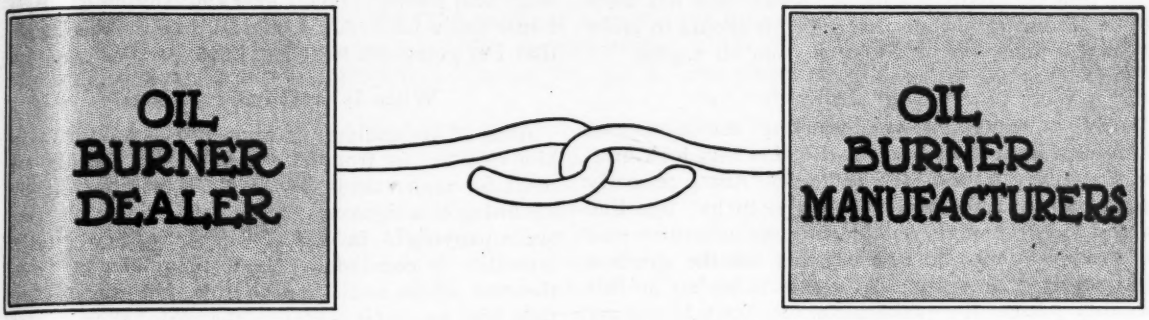
8.3 × 15 = 124.5 pounds = w.

80° F. — 50° F. = 30° F. = (t-T) or difference in temperature.

124.5 × 30 = 3735 B.t.u. per hour to be extracted.

In using individual coolers or a multiple hook-up system you would select the coolers and a refrigerat-

(Continued on Page 132)



What the Heating Contractor Should Know About Oil Burners

By
ARA MARCUS DANIELS

WHAT fundamental characteristics would every oil burner manufacturer like to see in every dealer who is the connecting link between his factory and the ultimate user of his product?

What fundamental characteristics would every dealer, handling an oil burner agency, like to see in the firm he represents and the product on which, as a business man in his community, he stakes his reputation and by it succeeds or fails?

Two questions presenting two sides of the important problem of the oil burner business—coordinate questions demanding full consideration where the establishment of an oil burner agency is contemplated or where a new business is to be inaugurated if results are to be commensurate with efforts expended.

Why Failures Occur

Too often, failures in business are directly traceable to lack of sufficient data or information bearing upon the advisability of the marketing of a given product and the possibility of success or failure in so doing.

How often does analysis of possibilities precede the decision of a man to invest his capital, time and reputation in a new business, or in a new branch of an existing business? And how often does the average business man whose affairs are not progressing profitably sit down and study the factors that are contributing to his gain or loss before crying about business being bad or making a helter-skelter effort to boost it up?

Is it reasonable to suppose that a successful enterprise is the result of chance? Did it just happen? Or, is it the result of a careful survey of all factors that can and do affect the outcome, with planning as to how to control those factors to obtain the result desired?—In most cases it is no doubt the result of carefully laid plans.

Look Before You Jump

There are scattered throughout our broad land innumerable chains of stores. Where are these stores located?—at prominent points, of course. But do not think for a moment that the firm that stands behind that investment "just decided" to locate one of their places at that particular spot because they thought it a good location or it appeared to be attractive.

Indeed, no. Before the decision was made to establish a store at that point, they knew it to be a desirable place. They had "checked up" on the number of persons that passed that point during every hour of the day by placing a man there with a counter in his hand. And this man was kept there "counting" the passers-by for a sufficient number of days to assure a tabulation of counts that would be representative. They had studied the number and character of competing firms, and from data in their possession relating to a similar project under similar conditions, including data to show the proportionate number of persons who enter and buy to those who pass, they had eliminated guesswork and proved to their own satisfaction that conditions were such as to support profitably their establishment. They knew before they invested.

How many men who have taken on an oil burner, either as a branch of their present business or have entered the oil burner field as a representative, with no previous experience in that or allied lines, knew possibilities and probabilities and how many have been successful? Unfortunately, figures are not available.

Study the Situation

It is no secret to say that failures have been greater in number than has been best for the interests involved, namely, the manufacturer and the dealer. It is therefore essential for any man who is considering becoming an oil burner dealer or who

may now be handling a burner which does not seem to be producing for him that which it should to make a careful study of the situation from all angles.

Examine Yourself

And, in examining and studying conditions, let him not forget to study himself. Let him look himself squarely in the face and ask, "Am I properly equipped and prepared, personally, to put this line across?" And let every oil burner manufacturer who is seeking to open up new territory ask the question of himself—"Does this man who is to be 'me' in this locality possess the qualification necessary to put my product across and carry my name to the people of that town in such a way as to establish and maintain it as a symbol of what is best in the business world?"

Requirements from Manufacturer's Viewpoint

From the viewpoint of the manufacturer, it is important first that the dealer, above everything else, should be a man of undisputed honesty. Another most desirable asset is that of an expert merchandiser. Then, he should have good mechanical sense and ample capital properly to conduct his business and carry on for a sufficiently long period to enable him to get "set" and to establish the understanding in the minds of prospective customers that he is handling an article in which he has explicit confidence and is in a business in which he expects to stay.

Lucky indeed is the oil burner manufacturer who can find, attract, and interest a man possessing all of these desirable qualities. Seldom are they found in one person. In fact, it is an exception to find a good mechanic who is a good merchandiser—a far greater exception to find a good merchandiser and good mechanic who has necessary capital to set himself up in business.

What the Manufacturer Seeks

The wise oil burner manufacturer therefore seeks the good merchandiser in preference to a good mechanic and one of proved ability in merchandising in preference to a man who has capital but lacks the attribute of successful selling ability. It is considered easier to make of a man a good mechanic than to train him to merchandise—easier to assist him to obtain needed capital than to teach him how to "turn-over" that capital with the merchandise supplied.

So, let a prospective oil burner dealer examine himself in the light of the manufacturer's prerequisites and see if he stacks up right. Let him ask himself, "Can I sell? Have I ever sold anything? Have I just had a job? Am I, myself, sold on this burner that I'm going out to sell to other people?"

When Is an Oil Burner Sold?

And, in his analysis of himself as a salesman, let him view selling from its widest angle. Let him ask what he understands by a sale. Is it merely the obtaining of a signature on the dotted line with check accompanying? Is an oil burner sold when this formality is concluded? Is it time then to forget the man whose name appeared on the order blank—pass him up, as it were, to the installation department—a severance of connections between the so-called salesman and purchaser, or is the obtaining of the name on the dotted line just the beginning of the sale? Think it over. Can this not be like the welding of a link of a chain to which many links may be welded as time goes on? Does it not present the opportunity for a bond of friendship which may grow and develop into other friendships as the months slip by? Has not a true salesman done his customer a kindness in bringing to him a piece of merchandise which will add to his comfort and for which he is to pay a just price and receive full value? Most persons appreciate service of this kind.

If the bond is strengthened between him who sells and him who buys, then and then only has a real sale been made. One dissatisfied customer can do more harm than twenty who make no kick to the dealer.

But, how often does the self-styled "salesman" follow through when the signature has been obtained? How soon does the purchaser forget the name of the man who "ran" him? How often does he remember it?

Who's responsible? When is a "sale" made? Important questions, these, to ponder over. Let him who has aspirations in this direction ponder and think and, when he has pondered and thought, perhaps he will be better able to decide his fitness to represent a reputable firm's product with justice to the manufacturer and desired profits to himself.

For Whom Do You Work?

But let him remember, above all else, that he is working for "Me, Mine and Co." A certain regional manager for a large manufacturer was required to supply his own cards, so, in having them prepared, he placed his name across the center, prominently conspicuous with the firm's name in smaller type in

Part of a fuel oil train on the way to a distributing plant of fuel oil in Chicago

a lower corner. One of these cards fell into the hands of the manufacturer. The manager immediately received a wire inquiring, "Who are you working for, Blank Manufacturing Co. or for A. B. Smith?"

An equally prompt telegram informed the manufacturer that his manager was most certainly working for A. B. Smith, first, last and all the time, and that he was merely using the Blank Manufacturing Co. as the best medium available. Thereafter the manufacturer supplied the cards. Don't lose sight of "Me, Mine and Co." nor of the medium by which "Me, Mine and Co." conducts a profitable business.

Requirements from the Dealer's Viewpoint

What should a local man look for in an oil burner and the firm behind the burner in order that he may "sell" himself on them before attempting to "sell" others? In other words, what is reasonable for a dealer to expect from a manufacturer?

First and foremost, the burner should be well constructed and fundamentally sound in design, and thoroughly tried out and proved. Comprehensive field tests should have been conducted and data therefrom made available to the dealer. The dealer should not look for a perfected article, but rather expect improvements from time to time.

Co-operation Essential

Then he may rightly expect a certain amount of co-operation from the manufacturer, particularly in the matter of merchandising the product, for men have spent years learning how to advertise and how to sell the goods advertised. It is not to be expected that a local man could handle properly this important phase of this co-operative project without the help of trained talent. It is therefore in the interest of every manufacturer with a good burner to help the dealer by employing competent talent to prepare advertising copy, direct mail appeals, catalogs, manuals, demonstrating methods, window and other displays, to choose advertising space, and form a general selling plan whereby prospects may be found and profitable customers made of a good percentage of those prospects.

Equitable Contract Necessary

He is justly entitled to a 50-50 contract. If he is not accorded such, it behooves him to inquire more diligently into the business with which he is about to align himself and the men behind it. Let him ask himself if a contract is sound from the point of good business if it requires him to buy and pay for a considerable proportion of his year's requirement at the beginning of his contract year? Let him realize that to pay as much as 10 per cent of his year's quota at the beginning of the year may prove a handicap and work a hardship on him when he finds that it may be necessary and advisable to extend long credit to customers and thus assume the contingent liability of a large volume of current accounts.

He should appreciate that it is as important to both parties that the distribution end be properly financed as that the manufacturing end have ample capital and that payments required of him in advance of his needs constitute practically a partial financing of the manufacture of the product. Most businesses are soundest when transactions are handled on a 30-day credit basis with a ten-day 2 per cent discount. It will probably be in his interest to consider most favorably a factory contract on this, rather than on a more lop-sided requirement.

It will be in his interest to hesitate where he must buy burners in large lots in advance of his requirements and to know definitely whether such additional burden is justified. He must avoid the additional tax which the services of a finance company would impose, if he would have his business sound and profitable.

Burner Must Be Priced Right

The burner must be priced right—that is, it must be such as will enable the dealer to make a profit. Inadequate consumer selling price will surely drive any good ship on the rocks. He should expect guidance and help from the manufacturer along this line.

But, his manufacturer should not be expected to go into the details of handling his business, such as to know the true and complete cost of putting and keeping a burner put in the consumer's place. Anxiety to make sales should not blind him to what it is costing him to handle accounts. His sales price should not be based solely on that of his greatest competitor; such is contrary to efficient selling and absolutely wrong in principle.

Two factors should determine the price of the burner, namely, the service or value rendered the buyer and the cost of the burner to the dealer, plus a profit in keeping with the skill required and investment demanded. No man who does not have a knowledge of the cost of doing business can expect to conduct it profitably. To endeavor to slip one over on the other dealer who is selling his burner for $650 by offering yours at $625 may be to fool yourself more than any one else. But where accurate cost data warrant a lower price, well and good.

Who Make Good Dealers?

From what walks do oil burner dealers come? In some instances they have been selected from many lines of business that have nothing in common with the selling of oil burners. Some make good, others fail. It depends primarily on the man.

But, is it not reasonable to assume that the best field from which to draw dealers is the heating field? The oil burner belongs essentially to the heating field, and therefore, logically, should be firmly established in it. Every product can be sold most effectively in the field of which it is legitimately a part. Oil burners and the handling of an oil burner agency do not lend themselves to high pressure salesmanship, for the future of oil burner sales is wrapped up in the relation of the burner to the heating system.

A burner sold without due consideration of the heating system and with little thought of the future may be a hindrance to business rather than a help. As surely as a burner is sold to do something it could

never be expected to do, just so surely does that burner become a liability instead of an asset. It takes away, rather than adds sales.

Salesmanship Essential

Some manufacturers have found in certain instances that plumbers and heating men were not as successful as they should be in selling oil burners, and doubtless there are members of the plumbing and heating trade who need to analyze themselves as salesmen before closing an oil burner agency contract. In general, poor results are found in organizations which do not know salesmanship, but just as poor results may come from lack of knowledge of heating. This should be sufficient to impress upon every heating or plumbing contractor, who contemplates taking on an oil burner agency, the fact that oil burners have got to be sold. They do not, as a general rule, sell themselves. So, the dealer must know selling at least in a small way—how to approach, how to interest, how to convince and how to close, while in the larger agency he must be able to pick and hold men who do know these points of selling.

Capital Requirements

How much capital is required by the man who thinks of taking on an oil burner agency? This is a hard question to answer without knowing local conditions.

Oil burner agencies are of two kinds, "exclusive" or subsidiary. In the larger cities, the exclusive agency is handled by a man who may sell oil burners, only, or he may also handle refrigerators or some "allied" product, in order to provide his salesmen with a broader opportunity for sales. Such agencies usually attract men from all walks of life.

In the smaller towns, the subsidiary agency is a part of an already established business, such as plumbing, heating or some other line.

With rare exceptions, cities with a population of less than 50,000 are not considered large enough to support an exclusive oil burner dealer. Up to 10,000 population, it is believed unwise for a man to consider devoting all his time to oil burners.

In a town with a population of approximately 10,000, in which a plumbing or heating business is established, $1,000 is the very least capital that should be available for purchasing, installing and pushing oil burners, and unless the proprietor is an excellent business man and knows closely what it costs him to do business and what his net profits actually are, it is most probable that he will find himself in deep water before long. The writer would advise that he have at least $2,000 additional capital for investment in the oil burner side of the business on the basis of a population of 10,000 persons.

In cities above 50,000, naturally, the amount of capital required to do a fair business depends upon the size of the town, the conditions in the town and the extent of the dealer's knowledge of oil burning. If he is a stranger to this new method of heat generation, it may take him some time to learn the ropes. On the other hand, if he is already familiar with the oil burner industry, and perhaps has had experience as a salesman of burners or as an installer and salesman combined, he will be enabled to begin to "pay his way" sooner and therefore will require a much smaller amount of capital than the man who is new to the game.

Successful agencies have been started on as little as $3,000 in cities with populations of 50,000 and above, but these have been the exception. Lack of finances has been one of the chief causes of failure, and this lack has been due principally to the fact that the establishment of an agency has been attempted without sufficient knowledge and investigation on the part of the dealer as to the requirements of such a business.

Capital Investment

It is believed safe to say that the average dealer should be prepared to employ about two and one-half times as much money per burner sold per year as the manufacturer. It has been estimated that for a man handling a recognized good line of oil burner, that he may require about $250 for each burner sold per year to about $100 for the manufacturer. If this ratio is about right, and it is believed a safe one, on which to estimate, then it serves to emphasize more forcibly the need of co-operation between manufacturer and dealer.

Therefore, in a city of, say, 200,000 or more, it is believed unwise to expect to build up a productive oil burner agency with an amount of capital less than $10,000.

Prerequisites for Successful Agency

Thus, the prerequisites for a successful oil burner agency may be summarized briefly as follows:

1. A dealer and a manufacturer who appreciate fully that such an agency is a co-operative project.

2. A dealer (a) who is honest in business dealings with himself and others, (b) who is a good merchandiser with the necessary capital properly to finance his business, (c) who is continually informing himself and his force on matters, technical and otherwise, pertinent to the oil burner industry, (d) who has the ability to analyze a heating installation and to make or have made not merely fair but excellent "stay-sold" jobs, (e) who has the personality to enthuse his salesmen, and (f) who is possessed of plenty of sales energy.

3. A manufacturer (a) who supplies a fully proved and satisfactory oil burner, (b) who presents his product for the attention of the public through well planned advertising mediums, (c) who is willing to meet the dealer on an equitable contract basis, (d) who will endeavor to work with his dealer rather than work him, and (e) who is sufficiently financed for production to be able to abstain from imposing such purchase requirements on his dealer as may hinder rather than help the progress of the burner in the locality in question.

A careful attention to and consideration of these requirements will go far toward producing an oil burner agency which will be a monument to the manufacturer and an enviable asset to the dealer.

La Salle Apartments
Washington, D. C.

A heating plant of simple but proven design, for a twelve-story residential building

By J. HENRY HALLAM

THE LaSalle Apartment House, located at the southwest corner of Connecticut avenue and "L" street, N. W., Washington, D. C., offers a good example of simplicity of design and proven engineering principles in heating installations.

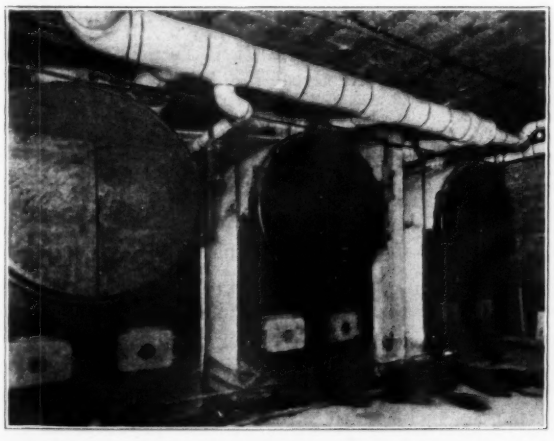
Located in the center of the business section, where space is limited and very valuable, it was necessary to economize on space and at the same time keep within a set expenditure, with a heating efficiency that is vital to dwellings of this type.

The building is twelve stories high, of brick construction, having approximately 35,000 sq. ft. of radiation, divided almost evenly for each floor, and using about one thousand radiators of the conventional unconcealed residential type.

The heating is done by a low pressure one pipe steam system. Steam is generated by three boilers parallel and manifolded together. Each boiler is also valved separately for individual use. All boilers have automatic dampers and are fired by oil burners.

Sub-Basement Not Possible

In order to save space and not excavate too deeply for fear of striking water, it was necessary to excavate one end of the basement for the boiler room, instead of making a sub-basement. This room, however, is completely bricked in and has one entrance from the basement. At the same time it is possible to obtain some direct ventilation through windows to the street. There is plenty of space in the boiler room, everything being easily accessible for repairs.



The closeness of water to the surface made it impossible to excavate for a sub basement. This difficulty was overcome by excavating one end of the basement for the boiler room

There is about 35,000 sq. ft. of radiation in this building. This was divided almost evenly for each floor and required the installation of approximately 1,000 radiators

The arrangement of the boiler room has made possible the advantageous position of the oil tanks and their quick accessibility for filling at the street level. All three oil burners are valved for separate operation.

The boilers are so figured that any two of them will carry the load at conservative overload ratings.

Hot Water Service

Hot water is supplied by three 1,500 gallon storage water heaters, the steam being furnished by the heating boiler, which necessitates the running of at least one boiler during the summer months. These tanks are placed directly opposite the boilers in a recessed portion of the wall and are valved for separate or combined operation. The same effect is had in the connections to the steam lines. They have, in addition, thermostatic and automatic controls.

Ten mains lead from the boilers to supply the radiators, the sizes varying from four to twelve inches. All pipes are concealed and those exposed in the boiler room are covered. In order to obtain a quick circulation with a minimum of heat, each main is vented, while all radiators have air valves. Hand controlled corner valves are on all radiators, and a great deal of attention has been paid to their location in order to assure the most efficient heating and circulation throughout the building.

The matter of the location of radiation is of extreme importance. As an illustration, near one of our state universities a heating contractor made an installation in his shop and display room. According to estimates of authorities, the building required 275 sq. ft. of radiation. Actually, in operation, 80 sq. ft. of radiation is employed and is satisfying all heat requirements. It is believed that air currents are so effective in distributing the heat throughout the building that the efficiency of the radiator is proportionately increased. This is to be investigated this winter.

The unusual features of a heating plant of this size used in a building of this kind brought forward some questions as to its efficiency, due to its basic simplicity of design, but it has proven satisfactory.

Four Heating Trouble Jobs

By R. H. ANDEREGG

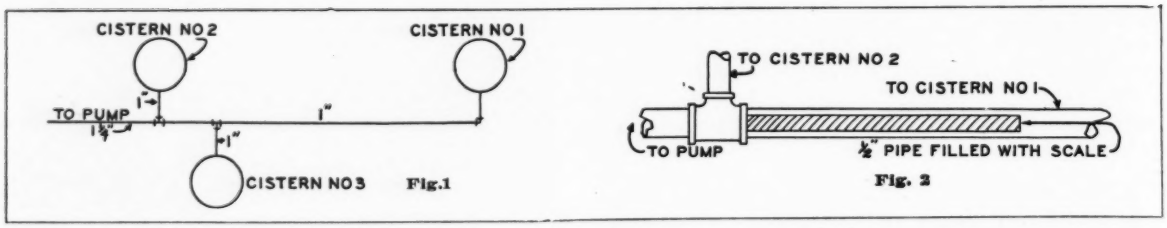


Fig. 1 Fig. 2

THE FOUR trouble jobs mentioned below all came to my attention in a period of only a few days. When one considers that these jobs actually occasioned not only a great amount of worry on the part of the owners and contractors but also considerable loss in money it behooves the fitter to check his work carefully to forestall trouble of any kind. The old saying of, an "ounce of prevention is worth a pound of cure," should be posted where everyone can see it frequently.

Difficulty in Pumping Water

Job number one took place in a greenhouse where cisterns were used to take care of rain water storage. Fig. 1 shows the general arrangement of the cisterns. Cisterns No. 1 and No. 2 were the ones originally installed. Trouble was always experienced in getting water from cistern No. 1. It was therefore finally decided to put in another cistern and this was No. 3 in the illustration. Fortunately, the plumber doing the work cut the suction line close to the tee which connected cistern No. 2 to the pump suction. You can imagine his surprise when he found that the suction line had a ½-inch pipe in it

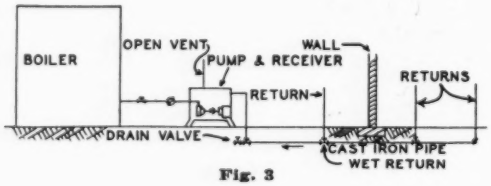


Fig. 3

which had become filled with scale and cut down the area so much as to cause the trouble. This is shown in Fig. 2. After the obstruction had been removed no further trouble was experienced.

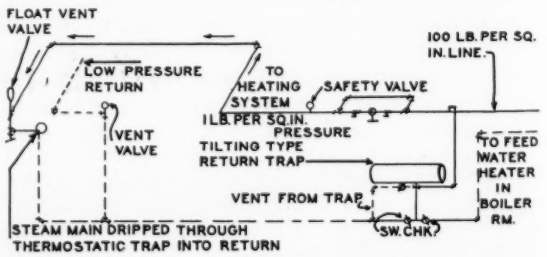
It might be well to emphasize here that about 80 per cent of all pump troubles are usually on the suction side. Too much care cannot be given to this type of piping. Remember it is very easy to get the suction pipe too small and this will cause no end of trouble. A good rule is to make the pump suction at least two sizes larger than the suction tapping on the pump.

Broken Return Causes Trouble

Trouble job No. 2 is one where a boiler had been broken due to the water not coming back. Fig. 3 shows the general piping arrangement. You will notice that the returns were all connected into a cast iron wet return which was carried to a pump and receiver as shown.

During the course of questioning it developed that they had found it necessary to add city water to the boiler practically every day. Also that the floor around the pump and boiler had never been wet. This assured the service man that there was nothing wrong with the pump, because if the pump had not been working water would have come out of the open vent and would have made a messy floor. The logical conclusion therefore seemed to be that the wet return had a break in it. When this solution was submitted, abuse was just heaped on our friend—his shoulders were broad so he proceeded to demonstrate. Unions in the three vertical returns were disconnected and plugged. A hose was then connected to the pump vent line and the city pressure turned on. It was found impossible to raise or hold pressure on this line which, of course, clearly showed where the seat of the trouble was. This was found to be the case when the pipe line was dug up.

In the course of further discussion it developed that the building had been erected in winter when the ground was frozen. In scooping under the partition wall footing care had not been exercised in putting the back fill in


FLOAT VENT VALVE
100 LB. PER SQ. IN. LINE.
LOW PRESSURE RETURN
TO HEATING SYSTEM
SAFETY VALVE
1 LB. PER SQ. IN. PRESSURE
VENT VALVE
TILTING TYPE RETURN TRAP
TO FEED WATER HEATER IN BOILER RM.
VENT FROM TRAP
STEAM MAIN DRIPPED THROUGH THERMOSTATIC TRAP INTO RETURN
SW. CHK.
Fig. 4

with the result that when the frost left the ground the wall settled, breaking the cast iron pipe at the tee closest to the footing.

Water in Ends of Mains and Returns

Job No. 3 is shown in Fig. 4. Trouble was experienced in relieving the ends of the mains and returns of water.

In looking at this piping you will notice that the system was supplied by a high pressure steam main at 100 lb. per sq. inch, which was carried through a reducing valve, connected in the regular way and then into a low pressure main which supplied steam to the heating system. The ends of the mains were vented and dripped

through thermostatic traps into a return which was carried to a high pressure tilting type return trap. This trap, when it discharged, carried the water to a feed water heater in the boiler room. Notice that the steam supply for this trap was taken from the 100 lb. per sq. inch pressure line. This was done so that the trap could discharge the condensation against the head caused by

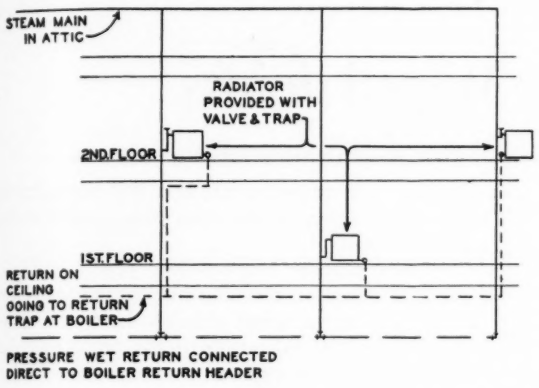

STEAM MAIN IN ATTIC
RADIATOR PROVIDED WITH VALVE & TRAP
2ND. FLOOR
1ST. FLOOR
RETURN ON CEILING GOING TO RETURN TRAP AT BOILER
PRESSURE WET RETURN CONNECTED DIRECT TO BOILER RETURN HEADER

Fig. 5

the higher elevation of the feed water heater and the friction in the discharge line.

It will also be noticed that the vent from the trap was connected into the low pressure return from the heating system.

In looking over this system it was apparent that the difficulty was due to the way the vent line from the trap

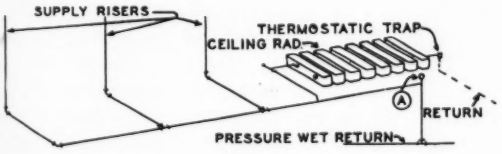


Fig. 6

was connected, that is, there was a tendency to build up pressure in the heating return. In disconnecting the union in this vent and letting it exhaust into the room it was found that the trouble was overcome.

This can be explained quite easily—with the piping as originally installed we were depending upon the radiating surface in the return trap to condense the steam left over after the trap had discharged. This condensation was not rapid enough with the result that the steam was discharged into the return, building up pressure and causing the trouble mentioned. After plugging the old vent pipe connection in the return and carrying the exhaust or vent from the trap to atmosphere no further trouble was experienced.

Noisy Operation Overcome

Trouble job No. 4 was an overhead vapor job with mains to be dripped directly into a pressure wet return and returns carried overhead to a direct return trap at the boiler. Fig. 5 shows the general arrangement of the system as laid out by the architect. This layout is somewhat unusual in that drop risers are generally dripped through thermostatic traps and connected into the overhead returns.

The layout as planned however was very good and should give excellent service.

The complaint registered was noisy operation and spasmodic heating on one section of a circuit.

In checking over the system as installed it was found that somebody had tried a slightly different arrangement on three of the drop risers than was intended by the designer. Fig. 6 shows the piping on one section which was giving trouble. The ends of the risers, in place of dropping directly to the wet return, had been connected into a return overhead and were all dropped into the wet return at one point. In addition a ceiling radiator was being supplied from this overhead steam return. The valve on the radiator was usually closed.

After looking over the piping it appeared that the difficulty was due to an airlock in the return at point "A."

To verify this, the burner was shut off and the pressure allowed to drop to nothing. The top of the trap on the ceiling radiator was then removed and the inlet valve to the radiator opened.

The burner was then turned on and allowed to build up pressure. It was found that the air was vented quite freely through the trap and no noise of any kind was heard. This confirmed the analysis and it was recommended that a float vent valve be installed at point "A" which was done. The job has been working satisfactorily since that time. It might be well to mention that the better plan would have been to drip each riser separately into the wet return.

Energy in Water, Steam and Electricity

Energy is the power or capacity of doing work. It is sometimes defined as accumulated capacity of mechanical work.

All kinds of energy can be reduced to terms of work although some forms are more readily convertible into mechanical work than others.

Energy that can be converted into work readily is usually called available energy. Examples of available energy are (a) dammed up streams that are converted into power through a water turbine (b) steam boilers under pressure available for engine or turbine operation, (c) volatile oils that can be used for operating gas engines, etc.

Energy that is not readily convertible into mechanical energy is usually called diffuse or unavailable energy. The principal example of a great reservoir of such energy is the molecular attraction forces within materials. For ages this form of energy has challenged the scientific world to make of it an available form of energy, but as yet no commercially successful process has been advanced.

Of the available forms of energy, further classifications are often desirable. These are those forms of energy that are available by virtue of (1) material position, and (2) speed, (3) chemical composition, (4) electrical or magnetic condition and by (5) temperature.

Energy that is available by virtue of its position is called potential energy.

Energy that is available by virtue of its speed is

called energy of motion or more generally, kinetic energy.

These two forms require additional explanation.

Potential energy may be transformed into kinetic energy and vice versa.

The drop hammer in a forge shop has potential energy in its uppermost position but just as it is about to hit or strike the metal at the bottom of the fall it is all kinetic energy.

Water passing over a precipice has mostly potential energy or energy of position at the top. At the bottom this energy is energy of speed or kinetic energy.

Steam under pressure behind a piston has a reserve of potential energy. As it rotates the fly wheel through the engine mechanism much of the potential energy becomes energy of speed or kinetic energy.

The Necessity *for* Wiped Joints

THE following pointed inquiry has recently been put to us—"The plumbers in the South, especially in the smaller communities, would like to see an article on the necessity for a wiped joint. Is the requirement in all city plumbing codes? Are not some of the patent connections acceptable? If required at all, where is the wiped joint absolutely necessary? A short item on this subject would be enjoyed."

In the first place, the principal defense of the wiped joint is that such a joint is considered a stronger joint than any other that might be used for the purpose of joining lead pipes together, or for joining lead and brass.

When a wiped joint is properly made, it is not only stronger than other joints, but it makes a better appearance, which under many conditions is a feature of some importance.

Use of Lead Pipe Decreased

Of course as the use of lead pipe on both drainage and supply work has gradually been given up to a large extent, the importance of joint wiping has decreased. Nevertheless, the well equipped plumber even today needs to know how to wipe a joint, and he needs to know what good solder is, what the correct proportions of the various metals are for making a joint that will have sufficient strength, etc.

In answer to the question, as to whether all plumbing codes require the use of wiped joints, we have the following to say. The question caused us in the first place, to see how the state plumbing codes handle this point, and so far as we can find, every state plumbing code contains the requirement that all joints between lead pipes or between lead pipes and brass or copper, shall be wiped solder joints. These states include Florida, Indiana, Iowa, Maine, Maryland, New York, Ohio, Pennsylvania and Wisconsin, one or two of these being codes that are recommended but not actually enforced. Three proposed state codes, Kansas, New Jersey and North Carolina, also contain similar requirements.

It would be impossible to find just how many municipal plumbing codes require, or do not require, wiped joints.

A few codes make no mention of joints of any kind, and we of course do not know what their practice is. We do know that the vast majority of municipal plumbing codes hold strictly to this requirement. While comparatively few codes make no mention, we do not recall that we have ever seen a plumbing code that specifically stated that other than wiped joints might be used. That is not saying, however, that there may not be such codes.

Code Requirements for Wiped Joints

The Hoover code requirement, and the requirement as given in about seven of the state codes above mentioned, is as follows:

"Joints in lead pipe or between lead pipe and brass or copper pipes, ferrules, soldering nipples, bushings, or traps, in all cases on the sewer side of the trap and in concealed joints on the inlet side of the trap, shall be full-wiped joints, with an exposed surface of the solder to each side of the joint of not less than three-quarters of an inch and a minimum thickness at the thickest part of the joint of not less than three-eighths of an inch."

The Birmingham, Ala., plumbing code's wiped joint requirement is typical of some of the codes which handle this subject in detail and in a more definite way. This is as follows:

"All joints between lead pipes, traps or bends, soldering nipples or ferrules, or the joining of one lead pipe to another, shall be wiped joints, made with plumbers' solder, composed of one part pure block tin, and two parts pure lead. All brass ends of joints shall be properly filed and then tinned. The lead part of the joint shall be properly shaved with a shave hook, as cleaning with sand paper or any kinds of scratch cloth will not be allowed. The joint shall be so constructed that the water shall always have its natural flow without any inside obstructon of any kind. All wiped joints shall have the junction of pipes in the center of heaviest part of the joint and there shall be a thickness of solder of at least three-eighths of an inch at this point and the joints shall be of uniform thickness all round with edges wiped clean and smooth. No foreign substances of any kind shall be put upon this joint to make the same water tight. All flanged joints wiped upon floors or against walls must be reinforced by a lead washer being placed around the pipe of the same thickness as that of the pipe and the pipe turned over same. No joints made with a torch, known to the trade as overcoat joints, sweat joints, cup joints or blow joints, will be allowed on any soil, waste, vent, revent or supply connections."

Certainly some of the patent connections do good work, and no doubt many of them are used. Their use, however, as far as we know, is oftener found in country districts than in cities and towns operating under a plumbing code.

As we said at the outset, the wiped joint is considered to be stronger and more reliable than overcoat, cup or other similar joints, and undoubtedly that is the principal reason for the requirement of this type of joint for lead work, in practically all plumbing codes.

PLUMBING & HEATING MERCHANDISING

Displays

what plumbing and heating contractors are doing to give the industry its share of public attention through the oldest method of selling

THE oldest form of salesmanship is by display. Whether the merchant be one who pushes his cart along the street; or whether he conducts the finest retail establishment in the land, his first concern will be for the display of the merchandise he has for sale. In the following pages will be found some of the most effective displays of the merchandise of our industry, shown under various circumstances: Some in stores individually operated and some in stores co-operatively operated; a display at a fair and one instance of a display in the lobby of a motion picture theater.

The last exhibit conducted by the Plumbing and Heating Development League of Philadelphia, was set up at Broad street and Wyoming avenue. It was maintained at that location for about three months, was open every day from ten in the morning until ten in the evening. There were thirty-seven plumbing contractors who participated in the exhibit and the average daily attendance was two hundred and fifty.

While Exhibit Was Open

Reporting in August, while the exhibit was still open to the public, John R. Hartman, campaign manager for the League, said:

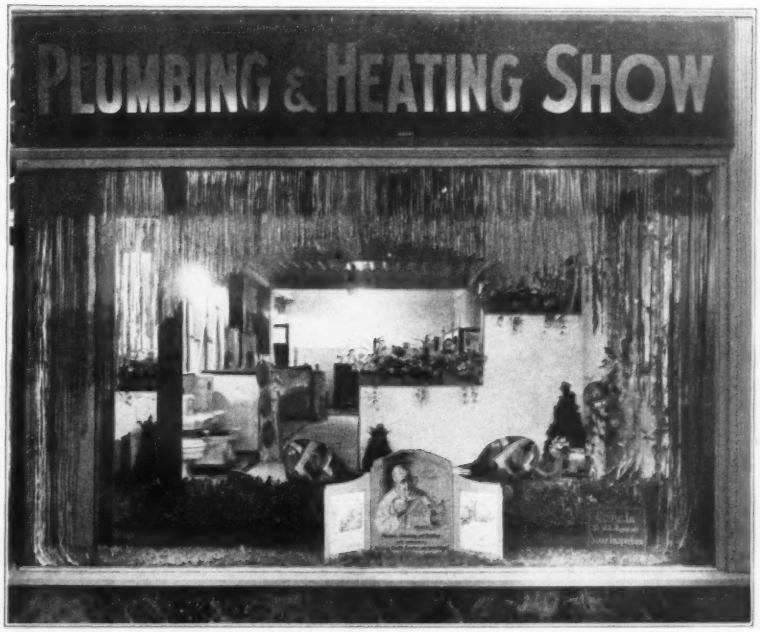
"To date we have traced approximately $2,300 worth of business from this exhibit with more to be closed.

"Indications of the attitude of the public are clearly shown by the fact, on numerous occasions, women visiting at the exhibit have returned later with the neighbors and conducted them personally through the exhibit.

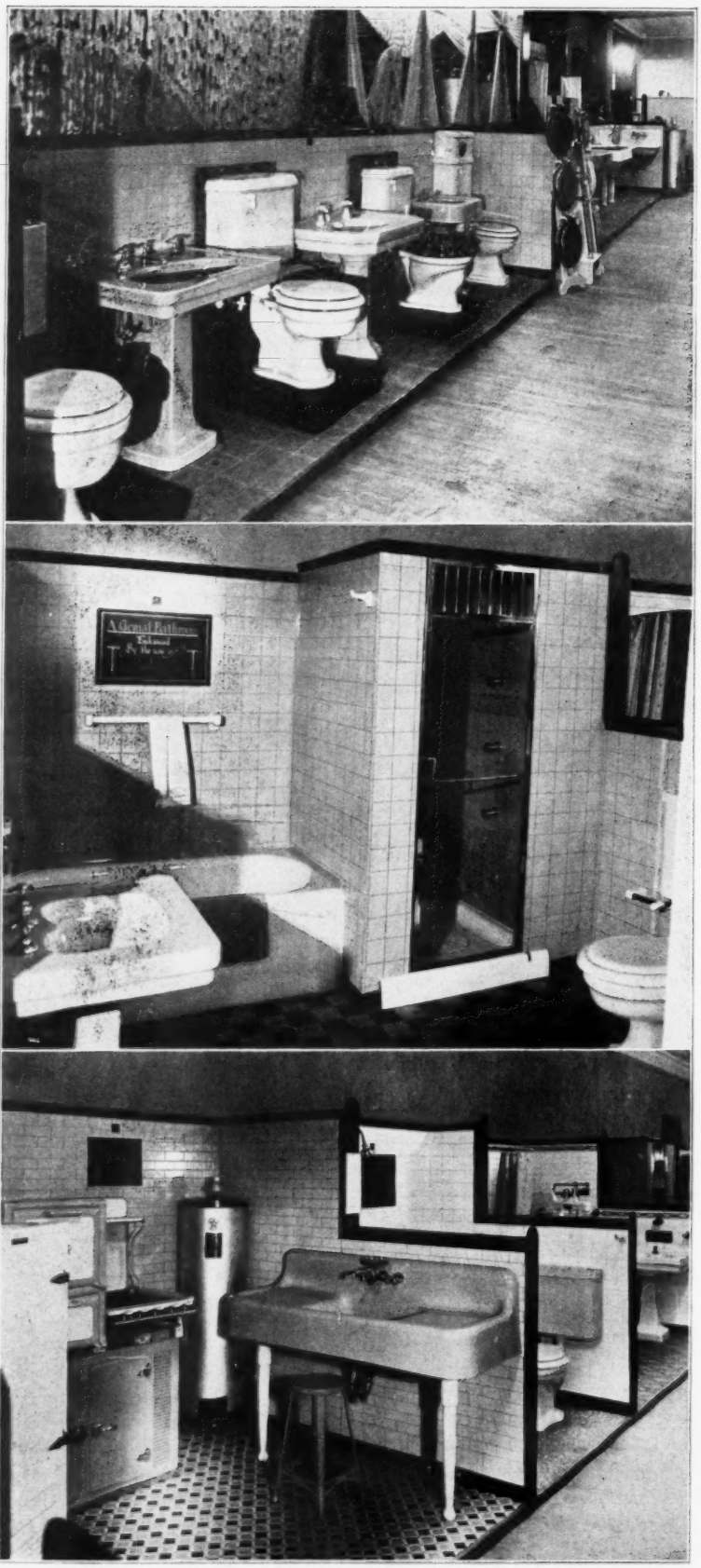
"Men on the floors are reporting that the people are not satisfied with this visit alone, but are returning twice and sometimes three times.

"The exhibit is proving a decided asset in educating the master plumber to approach the public.

"We have been using the exhibit



Looking into the latest exhibit of the Philadelphia Plumbing and Heating Development League



Three of the plumbing displays in the successful exhibit closed a short time ago by the Philadelphia Plumbing and Heating Development League

floors as a training ground to show the master plumber the correct method of approach, demonstration and closing of a sale.

"In the lobby of the Logan Theater which is located a quarter-block away from our community exhibit, we are having a striking success, approximately 40,000 people a week pass our industries' products, on display in the theater lobby.

"On the whole, reports seem to indicate that this is the best exhibit Philadelphia has held so far, not only from an interest arousing viewpoint of the people, but, also from an educational angle for the master plumber."

Reporting again on the success of these two exhibits just after they were closed recently, Mr. Hartman said:

"It is with a great deal of reluctance, that we close the Logan exhibit. This exhibit, held in a busy section in the northern part of town, was also the most attractive one so far conducted.

"The outlook of the exhibit, was one to command attention from the passing public. The show window facing on Broad street, instead of containing the conventional bathroom, was decorated to resemble the garden of a home, with grass mats on the floor, and attractive garden furniture to invite the public. The side show windows on Wyoming avenue, were quite attractively gotten up with the products of our industry.

"Complete bathrooms in different colors, took up one side of the show rooms, the other side was devoted to smaller articles of interest. In the rear of the exhibit, two complete boiler rooms were set up, with linoleum floors, colored walls, boilers, hot water heaters, and colored laundry trays.

"The attendance was well over three hundred people per day, and considerable community interest was aroused. This was evidenced by the fact that many persons returned, bringing with them friends, or neighbors, to personally conduct them through the exhibit. The master

plumbers in this locality, took an active part, and even now, are recording sales where the original desire in the mind of the prospect was created at the exhibition.

A Theater Lobby Display

"In connection with this show, a two weeks' display of our products was held in the lobby of the Logan Theater, which is just a quarter of a block away, from the exhibition. This theater has a normal capacity of five thousand people per day, so every day for two weeks, this number of people were present, and viewed our products. Kitchen sinks, hot water heaters, pedestal lavatories in color, laundry trays, hook-on-sets, and swing nozzle faucets were attractively displayed, with appropriate show cards, so that the people passing into the theater, could not help but be agreeably surprised at the new and attractive merchandise we offer.

"The management of the theater informed us that the attendance during the two weeks of our display had never been equalled. On the whole, the exhibit has done considerable to bring the industry to the attention of the public, and to create in the public a little more plumbing and heating consciousness."

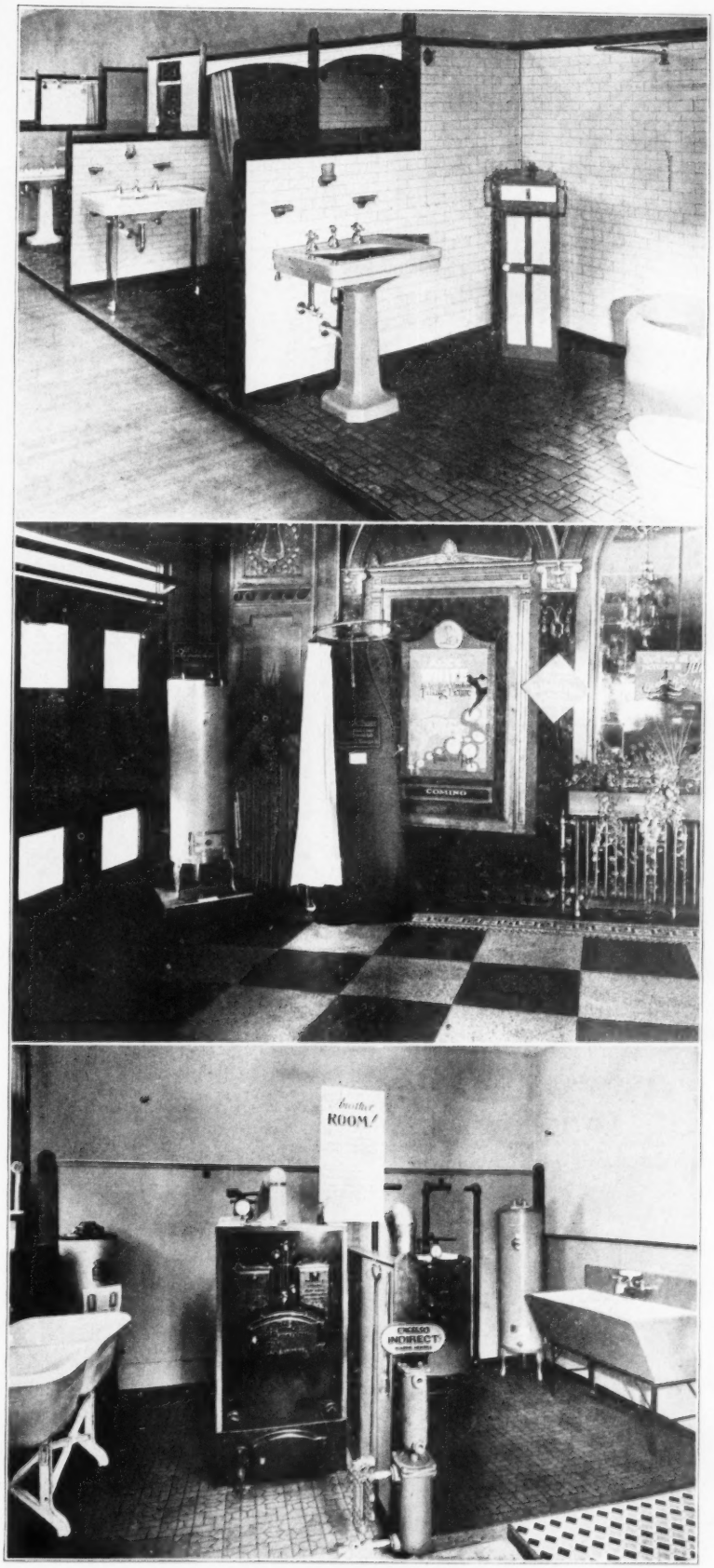
It is interesting to note the improvement over the earlier report, particularly with regard to the increased daily attendance.

Fair Exhibit Pays

R. H. GRIFFIN, executive manager of the Master Plumbers and Heating Association of Richmond, Va., was kind enough to send the following report concerning the display shown on this page:

"Eanes & Company, Inc., 1305 West Main street, Richmond, Va., plumbing and heating contractors, and members of the Master Plumbers and Heating Association, have reported worthwhile returns from their attractive display booth at the annual Virginia State Fair, held in Richmond during the entire week of October 7.

"R. Mason Booth, secretary and



Another Philadelphia plumbing exhibit at top; heating and laundry equipment at bottom. In middle is part of display in lobby of local movie theater

treasurer of the corporation, stated that, at the fair, the exhibit was responsible for the selling of ten gas ranges at $150 each and 14 heating units. In addition a number of prospects were secured for modernizing their bathrooms and kitchens, which are being followed up by representatives of the corporation and will undoubtedly produce sales.

"The exhibit showed gas ranges, heaters and hot water heaters. The company is considering a plumbing display for the state fair of 1930.

"In the building of the Eanes exhibit was also the display of Crane Company, which showed modern lavatories, bathtubs and other fixtures, and a display by Kohler Co., showing automatic water pumps.

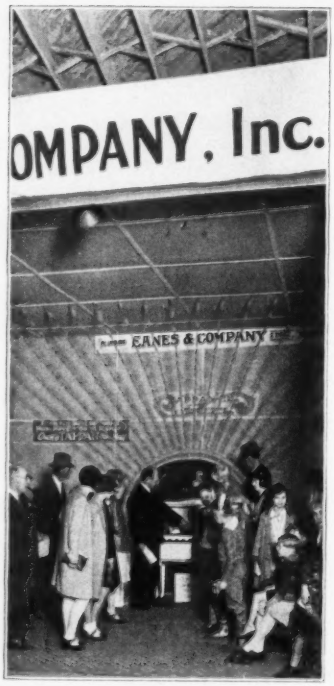
"Many people from rural Virginia were interested in these exhibits and thousands of city folk filled these booths almost continuously during fair week.

"Literature was distributed and it is anticipated that direct and indirect returns will be manifested during the succeeding several months."

At various times DOMESTIC ENGINEERING has called attention to the sales possibilities of exhibits at such fairs, and the above indicates the success which such displays may achieve.

The public attending fairs is in a progressive mood. People are looking for improved facilities and so are in the frame of mind to be convinced. They look to fairs for ideas in modern home equipment.

Besides, it is a point at which much modern competition from other industries must be met so that attention will be directed to the newer developments in plumbing and heating equipment.



Above: View of the booth maintained by Richmond firm at state fair. Below: Group of people watching demonstration in booth of gas range

Building Realistic Displays

NOTHING succeeds in winning the house-planner so well as showing products in the actual conditions in which they will be used. "House furnishing," declares Edwin P. Saeger, head of the Edwin P. Saeger Co., at 1401 Turner street, Allentown, Pa., "is a ticklish proposition, because many of the articles are bulky, difficult to handle as a unit, and do not lend themselves easily to proper demonstration or display against a background of other materials which a large house furnishing store must necessarily carry."

Mr. Saeger, therefore, has evolved a plan which has proven successful, both from a standpoint of increasing sales, and of enabling direct demonstration under circumstances exactly like those of the home itself.

Model Rooms Help Sales

On the floor of the Saeger store have been built a model laundry and a model kitchen, which serve exactly the same purpose as the famous clothes mannequins of the fashion houses. They show off the house furnishings as they are intended to be used.

The display occupies about the same space as the same rooms would embrace in a home; yet, it takes amazingly little of the show space in

comparison with its effectiveness, in the Saeger store.

"We would have to have that room for ordinarily holding these pieces of equipment anyhow," says Mr. Saeger, "so we might as well devote a little more attention, and put across the message with the proper force."

Against a wall in the showroom, Mr. Saeger had built a two-room replica of a home with wood. The front was left open. The wood portion consisted of a three-walled chamber divided by a partition. There was a ceiling as well.

The entire display was painted a pure white. In the kitchen portion, the illusion of reality was perfected by a small window, covered with a curtain. A door led through the partition from one room to the other.

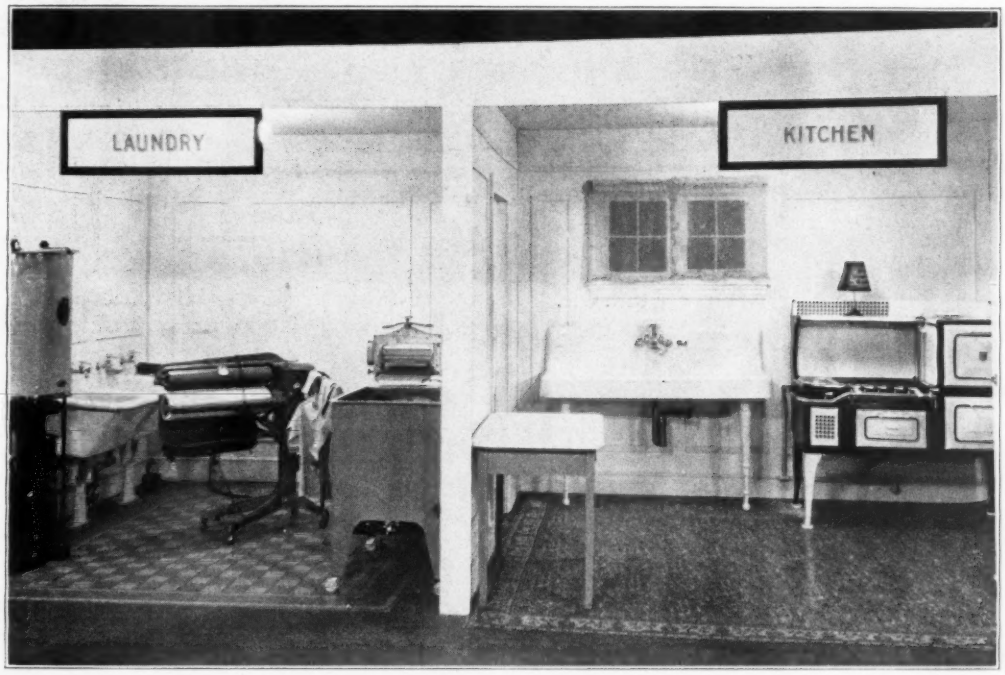
Linoleum was on the floor of both rooms. The laundry had a water heater, the laundry tubs, the mangle and the electric washer. They were connected in such a way that all of them could be operated just as they would be in any home laundry room.

The kitchen was equipped with a modern sink, a small utility table, gas range and refrigerator. These, too, were so hooked up that they could be demonstrated in actual use.

Less Sales Cost

The additional effect can well be imagined. Mr. Saeger declared there was an immediate rise in actual sales made from the floor, and less time per salesman was consumed in closing the sales.

It is worth pointing out here that Mr. Saeger's firm is one of the most aggressive among the merchants of the industry. Particularly in the matter of displaying the products of the industry is Mr. Saeger's grasp of the value of showing and demonstrating products exhibited. His windows are treated to give the same effect of realism—they carry the home atmosphere both in arrangement and in occasional demonstrations.



How an Allentown, Pa., plumbing concern builds actual displays to give home atmosphere

Co-Operative Display Successful

ANY question as to the soundness of the community showroom idea from a business standpoint, when the project was inaugurated a year ago last June by the Master Plumbers' Association of Montclair, Bloomfield and Vicinity, has undoubtedly been dispelled in view of the success that has marked its operation at 86-88 Church Street, Montclair, N. J. The records of the showroom indicate that ninety-six steam and hot water heating boilers, thirteen lavatories, seven bathtubs, eighteen closet combinations, ten kitchen sinks, sixteen gas ranges, twenty-two water heaters, one gas fired boiler, seven complete bathrooms, two electric dish washers, and a considerable amount of kitchen and bathroom accessories such as swing spout faucets, curtain rods, showers, etc., have been sold. These entries do not by any means cover all of the sales that have been consummated through the display room, as in many instances the master plumber members, of whom there are close to sixty, have concluded sales in their own establishments after using the showroom to interest their customers in materials exhibited. These sales should be credited to the community store but through oversight in reporting them this was neglected. The fact remains, however, that regardless of what the records actually show—and they appear accurate as far as Mrs. Harriet Collis, the young woman in charge of the

exhibit, is concerned—the venture has been an outstanding success.

Value of Co-operative Display

Prior to the opening of the community showroom, contractors were forced to inconvenience themselves by taking prospective customers to view exhibits of plumbing and heating materials only found in larger centers. This took considerable time and often some one else got the job. An instance of this, for example, was cited by H. J. Williamson, Montclair, N. J., president of the association, when he drove a prospect over to New York City for the purpose of selecting fixtures. The trip took Mr. Williamson four hours and some other master plumber was awarded the contract for the work.

"Consequently," he said, "any contractor who experiences this several times is going to weigh well his chances of getting a job before he suggests giving up his time. At any rate," he concluded, "a contractor under those circumstances is not going to urge a prospect to make a trip that has in it a possibility of taking time on which he gets no return." In discussing the advantages of the community showroom, Mr. Williamson said: "With our community arrangement little time is lost as it is about the same as having a customer in one's own store. On the other hand," he pointed out, "the manufacturer and the wholesaler at little cost derive the benefit which is bound to follow from exhibiting their products in a well-kept, well-patronized retail store which is open from 8:30 in the morning until 9:30 in the evening every week day." The evening arrangement is made easy by having the members take turns in keeping the store open. With each of the sixty members doing his share, this only amounts to several evenings a year for each one.

The store maintained by the Montclair, Bloomfield and Vicinity association

It Pays for Itself

At the outset when the association voted to go ahead with the enterprise and a store had been selected, the members immediately changed its layout to suit their purposes. This, despite the fact that the building in which the ground floor stores are was new, entailed considerable work. Partitions had to be taken out, electric wiring changed, etc., so that two stores could be made into one, permitting the use to better advantage of the 4,500 sq. ft. which is the approximate area available. The expense of the alterations was assumed by the association. These changes also included the arrangement of the floor space which offered, in addition to the windows, twenty-one booths. Manufacturers and wholesalers subscribed for this space, paying rentals ranging from $50 to $300 according to size and location. The window spaces were disposed of at $400 each. The income thus derived just covers the maintenance expenses incurred for rent, the salary of Mrs. Collis, the telephone, electric light, gas, window cleaning, postage, etc.

Literature descriptive of the prod-

Above: The heating exhibit and, below, the plumbing exhibit, maintained by Montclair, Bloomfield, N. J. group

ucts displayed is mailed out monthly to persons whose names have been entered on a mailing list which includes those of visitors, architects, builders, home owners, etc. A pamphlet bearing the names of all participating members is included in these mailings.

From time to time unusual effort is made to attract visits from the public. The most successful of these efforts proved to be cooking demonstrations conducted by culinary experts and cake-baking contests. These were made possible by wholesalers handling gas ranges. Without changing the established method of the distribution of plumbing and heating merchandise, the community showroom idea has proved a success in so far as it puts before the public, which represents a vast potential market, materials in such a manner that they may be closely inspected, thus giving gross sales of the association's members a perceptible boost.

The Master Salesman

analyzes a deferred sale

A man entered a certain shop and told the clerk in charge that he owned a certain house and the tenant had reported to him that the refrigerator drain was stopped up. He wanted a man sent up to clear it. A memorandum of the address was taken, and, shortly afterward, the master plumber came in. Being one of the kind who watches his business closely, he began looking over the mail and orders awaiting his attention; he came upon this memo of the stopped drain. In a short time he started out to visit each job, checking them, listing the nature of the work and the materials needed, as well as looking about keenly for the opportunity to sell some kind of merchandise. Taking each in its turn he finally came to the house and tenant where the refrigerator drain was reported as being stopped up.

After ringing at the front door he was admitted when he explained who he was and the nature of his call. Going to the kitchen and basement he made his memorandum of what was to be done. While in the kitchen he noticed that the tenant had an ice box of ordinary type. She asked him what was wrong and he explained that the drain pipe from the kitchen to the cellar was badly corroded and a new length would have to be put in. "Oh my," she replied, "I wish we had an iceless refrigerator, we would be free from all this bother. It isn't only the drain, but the ice and dirt and wet that goes with it, are simply terrible. I've wanted one and have asked the owner to furnish it for me but he flatly refused; I guess there is nothing left for me but to buy one myself."

It so happened that this master plumber does not sell refrigerators and has no data on them. But that condition did not eliminate his interest in a possible sale. He found that the tenant was interested in a certain make, had looked at them and decided, if she bought, she wanted one of a certain size. Everything was all set apparently for some one to sell a refrigerator. Our master plumber told her to wait just a few days and he'd see what he could do. While he didn't say so or suggest in any way that the owner would buy a refrigerator for his tenant, he left her with the thought that the plumber would speak to the owner about it. That stopped any sale of refrigerators until the master plumber had a chance to look into what he could do. After writing to the manufacturer he was furnished with information and pamphlets. Armed with these he did go and see the owner. Not to sell him necessarily, but to really get his positive "no" so that he could honestly tell the tenant she would have to buy the refrigerator if she wanted one. As he anticipated, the owner refused to consider the suggestion; then he went to the tenant.

First he saw the lady whom he met the first time; then on a later call in the evening, met her husband. When they were all three together, the conversation developed some discussion of the owner's attitude and when the master plumber finally came out with his statement that the owner was hopeless, that they'd have to buy one if they wanted it, the husband spoke up and said, "Well if I had the money, I'd buy one and let the owner go to thunder, but I'm tied up now and we'll just have to wait until a little later." So he told

Another Sales Kink

Here is an idea by which one master plumber sought to attract the attention of the passer-by to the services offered by his shop. The sign appeals equally to pedestrian and autoist, of course. Its similarity to the regulation parking signs and its humorous hint in the direction of parking problems, as applied to plumbing problems, makes it particularly effective.

The sign was used by Howard Bryant, of Bridgeport, Conn., a past president of the Connecticut association.

the plumber, "See me after the first of the year and I'll talk to you about getting one." The master plumber left and beyond any doubt has one excellent opportunity of selling them a refrigerator—if someone else doesn't beat him to it in the meantime.

THE ANALYSIS

Now analyze this little story and see how many good things there are in it:

First of all, this master plumber doesn't depend on his men to be his salesmen, he does the selling. When a job comes in he is the first man to see it, not the mechanic who is to do the work.

Second, he wasn't indifferent to the fact that the tenant was just as good a prospect for business as a property owner; in consequence, he was right on the job when the tenant began talking about iceless refrigerators.

Third, it made no difference to our master plumber that he did not, at that moment, have a selling agency for refrigerators. The outstanding factor was that there was his opportunity to make a sale; and so he dug up information about the refrigerator the tenant wanted and then did his best to sell it.

He didn't lose the sale, in fact actually brought his prospect to the point of wanting to buy, but the financial objective stayed the final action and that is where he should have gone a step further. There is no doubt but that the prospect could have made a partial payment of some sort; and, with as great a payment as could be had as his ammunition, his next shot should have been fired at the manufacturer. With the time payment policies so extensively in vogue, there is no doubt but that some satisfactory arrangements for monthly payments could have been agreed upon. Probably the manufacturer taking over the collections and title to the agreement of sale and leaving the master plumber to act as agent in making the collections.

Had our master plumber already established connections where the financial support necessary to extended credit sales would have been available, had he already made a connection with a manufacturer of refrigerators, he would have most certainly been prepared by them, with the very means of closing the sale the first or second call he made.

With the expression of these negative thoughts, don't lose sight of the fact that he made the start in the right direction. He is interested enough in progressive business methods to know, first hand, and before any of his men see the jobs they are to do, everything in detail connected with them. If there is any weak material to be replaced in a repair job, he sees that it is not overlooked in the instructions given the mechanic. If it is more economical for the customer to have new equipment, he is there to explain to them, why it is their gain in every way.

He might have prepared himself with proper manufacturing, wholesaling and financial connections, to have ready for sale a selected line of refrigerators, washing machines, dish washers, automatic heaters and other staple articles of household use that these days of modern invention and genius have developed to lighten household tasks.

Plumbing today is no longer plumbing fixtures and pipe as it was known twenty or thirty years ago. This specialty business really belongs to the plumbing industry, but it must be sold.

It doesn't require as much capital as alertness. Thought, study, and attention to the development of merchandising factors in any kind of a plumbing shop, will soon take away the title of "shop" and convert it into "store." The master plumber has the contacts, through the contacts the opportunity to find prospects. Finances for sales where the time payment plan is used may be made advantageously. There is no reason why, with these opportunities of assistance, the master plumber cannot be prepared to meet and successfully cope with any sales situation.

If

you have ever made *a difficult sale*
you have ever lost *a difficult sale*
you are faced now *with a difficult sales situation*

Write The Master Salesman!

You may have made a successful sale which was particularly difficult. Tell the story of it in detail to "The Master Salesman," so that he may include it in his department and point out why it was successful.

You may have lost a difficult sale. Perhaps you do not know why you lost it. Perhaps you have wondered what you might have done in order to secure the order. Send the story to "The Master Salesman," in detail, and he will tell you why you lost the sale and how you might have saved it.

You may be faced with a difficult sales situation right now. Write the details to "The Master Salesman" and he will advise you what course to pursue in order to make the sale.

He will welcome any letters reciting your sales experiences.

A Plumbing Problem in

Remodeling

IN ORDER to clean up the responses to the July 13th remodelling problem, and get a fresh start in this line of work, we are handling in this short article, two replies that came in too late for publication when we gave the problem consideration some time since.

The problem to be considered was based on the first floor plan and second floor plan shown respectively in Figs. 1 and 2.

The remodelling consisted first in providing a bathroom on the first floor if possible. In the event this was considered impossible, you were asked to put in only a water closet and lavatory. Also on the first floor another lavatory was to be located.

On the second floor two extra toilet rooms were called for, each to have a water closet and lavatory.

Those so inclined might work out a third floor plan, with a bathroom located there; a cellar plan was also to be worked out, with a water closet provided.

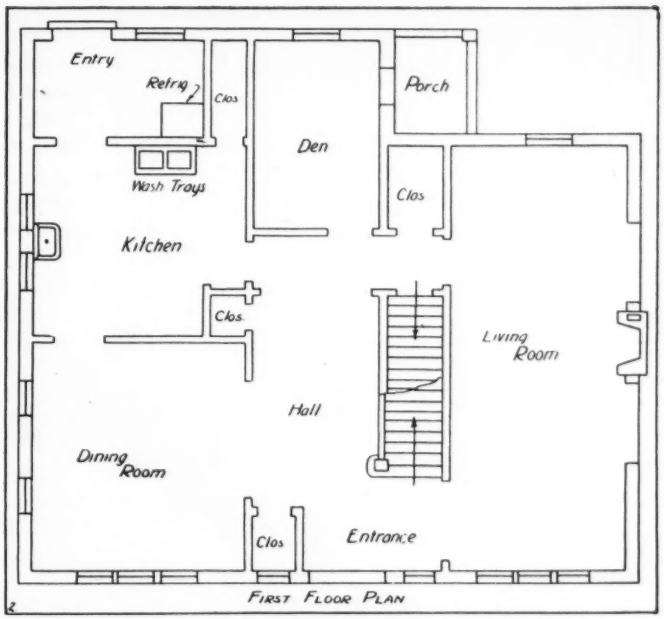


Fig. 1.—First floor plan

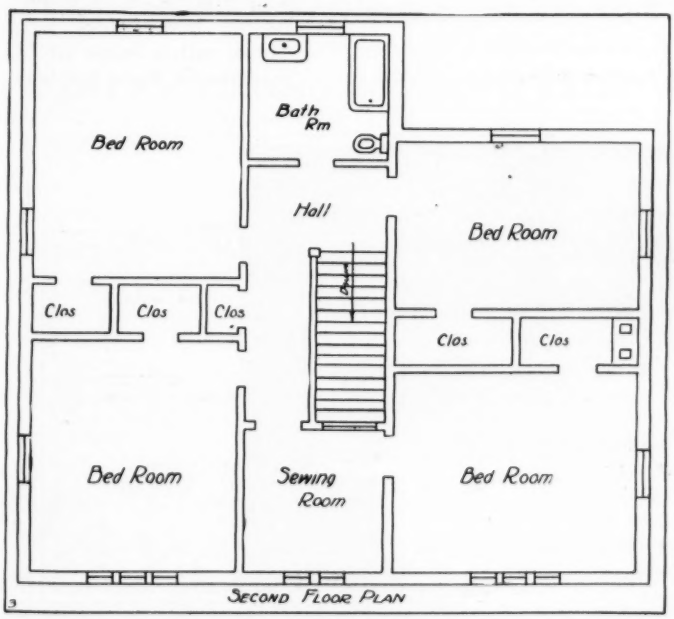


Fig. 2.—Second floor plan

From Brooklyn, N. Y.

Leonard Engstrom, Brooklyn, N. Y., has submitted a complete set of cellar, first, second and third floor plans, and an isometric elevation of the complete plumbing system. The work is very well done.

In a letter accompanying the drawings, Mr. Engstrom states in part: "I used three stacks to take care of the plumbing. The vent for the sink and washtrays in the kitchen was connected into the vent of stack B. I also drew a plan for the third floor, taking it for granted that the third floor would be smaller than the first and second floors, judging from the shape of the roof. I also put in a leader line.

"On the second floor I partitioned off half of the sewing room, and made a toilet room out of it. For the second toilet room I used one of the closets, putting in a door so that it could be used by the occupants of two bedrooms. In the case of the closet with a door leading into the hall, I filled in the door and made another door opening into the bedroom."

We are very much pleased with this remodelling job.

On the first floor work there is no criticism. As far as we can see, it has been done with the least possible outlay. It was doubtless a wise thing to install the first floor toilet room without a bath, for the real necessity does not take account of that fixture, but rather of the water closet and lavatory.

Clever Layout on Second Floor

The layout for the second floor has been very cleverly thought out. To be sure, what is left of the sewing room does not amount to much more than a nook, but it has a window in it which helps some.

Of course in such a case as this, the real

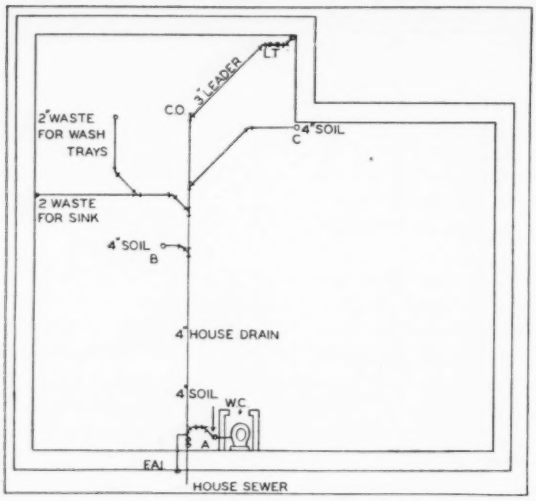


Fig. 3.—Cellar plan

question is whether the bathroom or the full-size sewing room is the thing most desired by the family. That would almost always settle the matter. This choice of providing for this bathroom is especially good, because a window is obtained without expense.

Of course the use of the closet for the second toilet room has only one objection—there is no window opening into it. Owing to the fact, however, that a door opens into it on both sides, the toilet room would be much benefited.

We wonder why the closet at the left was not chosen. Probably because it is a bit smaller than the middle closet.

It is a good thought to fill in the door space, but often the inconvenience of having the door where it originally was, would be accepted. It is to be presumed, however, that a family able to install all this plumbing, would want even details of this kind carried out in a way to provide the greatest comfort.

The third floor plan is well worked out also. As Mr. Engstrom states, the slope of the roof as shown in the cut of the house (See July 13), would result in the smaller floor space, as he has shown it.

There is one feature of Fig. 7, the isometric elevation, that we want to speak of. At each corner of the intermediate floors, the floor line is shown only part way. We presume the idea of this is to overcome confusion of lines. It appears to us, however, that the scheme really results in making the drawing a little less clear than it would otherwise be. The distinction between pipe lines and floor lines could possibly be brought out by making the floor lines broken or very light, and the pipe lines heavier.

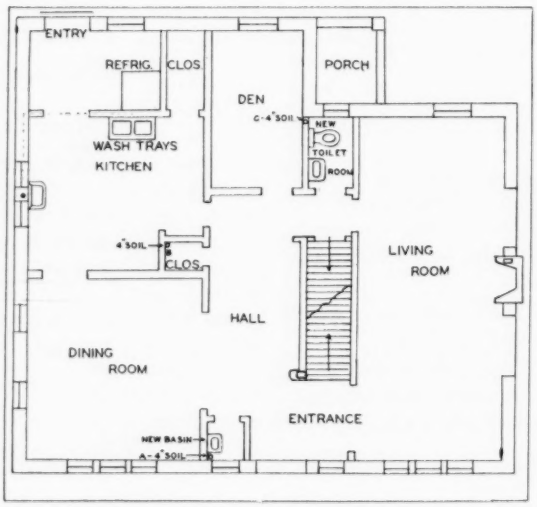


Fig. 4.—First floor plan

From Allentown, Pa.

Wm. M. Glose, Jr., Allentown, Pa., has also submitted his solution of the remodelling problem of July 13th, as shown in Figs. 8, 9 and 10, which are the first and second floor and cellar plans respectively.

As in the case of the previous solution, the first floor remodelling was worked out by use of the same closets for the toilet room and extra lavatory.

Also on the second floor work, the sewing room was divided, and a closet used for the toilet room.

A letter accompanying the drawings makes the following explanation of them: "On the first floor plan you will see that I did not provide for a bathroom, but for a toilet room instead. I could have put a bathroom in the den, but then the door to the back porch would have had to be changed.

"On the second floor, I could have put the two toilet rooms into the sewing room, but then the family would have had no sewing room.

"In the cellar I provided a basin for receiving the refrigerator waste, also a floor drain."

Good Judgment Shown in Plan

We think good judgment was shown in carrying the work out as described and shown on the plans.

It was much better to omit the bath tub than to spoil such a room as the den.

It would not have been such a bad idea to give up the sewing room and split it up into two toilet rooms. As we have before intimated, such a course would need the O. K. of the lady

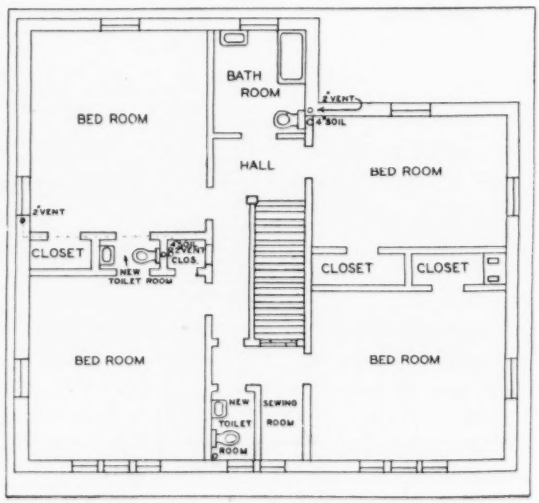


Fig. 5.—Second floor plan

LEADERSHIP

"The Finest-Looking Sink Faucet on the Market"

. . . an unsolicited opinion of the Erico Double Sink Faucet

Glance below at the illustration of this fine fixture. Note the clean look of it—the graceful curves of the design give a pleasing appearance that appeals to every housewife. See how low the soap dish rides to the top of the spout. This faucet fits nicely in any sink, especially those with low backs. The Erico Faucet, including handles and soap tray, is made of high grade red metal with a bright, long-wearing Hays chromium plated finish. Furnished flanged female or adjustable screw flanged male. Efficient design and expert workmanship are combined to make this Hays Faucet the most reliable and durable as well as "the finest looking sink faucet on the market." Write for specifications and prices.

HAYS MANUFACTURING COMPANY, ERIE, PA.

HAYS *A HAYS job is a credit to you* DOUBLE-SINK FAUCETS

Complete Line of Ground Key and Compression Plumbing Brass Goods from Street to Bath

of the house, and if it was satisfactory to her, the plan could doubtless be put into effect. However, if the closet is big enough, the present plan would probably be better, as it distributes the toilet facilities to better advantage.

In this group of drawings, instead of making a single

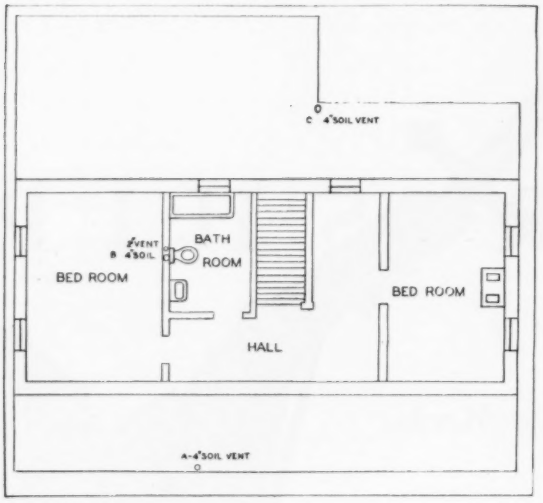


Fig. 6.—Attic floor plan

isometric elevation of the entire plumbing system, a separate elevation is made of each stack. This method shows the work very clearly except in the case of stack A, Fig. 11. We believe, if this view were taken from the other angle, it would probably make the work much clearer.

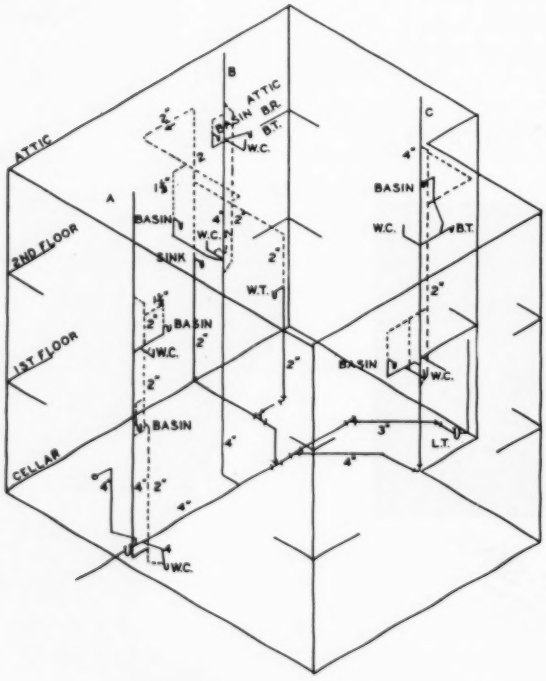


Fig. 7.—Isometric elevation

One advantage of making separate elevations of the different stacks is that for each one of the stacks that particular view may be taken which will show it most clearly.

We should state, however, that often it cannot be clearly seen which angle would be best, until the work has been completed.

Both these solutions of the remodelling work are very creditable.

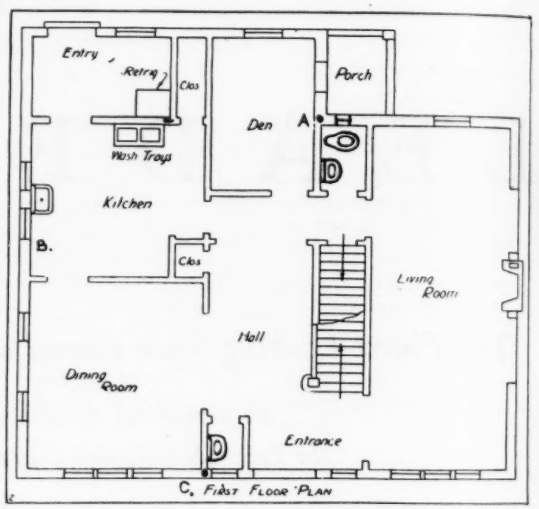


Fig. 8.—First floor plan

Problem in Pipe Sizes

THERE was a secondary problem given out, following the remodelling problem.

This additional problem was given with the idea that

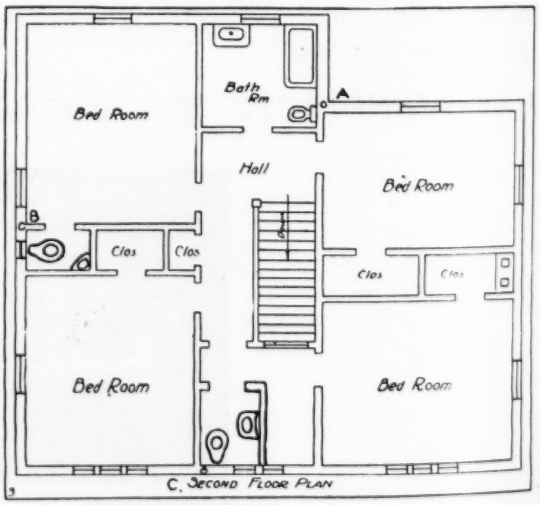
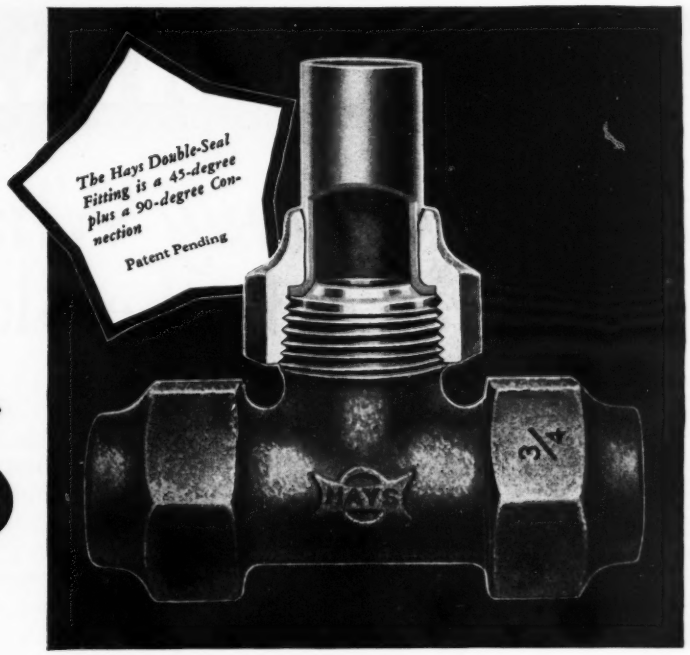


Fig. 9.—Second floor plan

it would assist in getting us accustomed to the figuring of sizes of stacks from the tables of sizes given in the Hoover code.

As most of you will recall, in the Hoover code all



HAYS IS THE EXCLUSIVE MAKER OF THE DOUBLE SEAL CONNECTION!

No one but Hays can give you a copper pipe connection that provides two separate points of contact with the flanged pipe. This design and manufacture—found only in the Hays Double-Seal Connection—assures *both* the tightness and strength needed to make joints *positively* leak-proof.

The success of the Hays Copper Plumbing Method is due to the efficiency of this exclusive Connection. It has made copper plumbing systems trouble-proof and more economical for your customers by providing permanent plumbing installations without threading.

Good plumbers make more profit working with the Hays Method. At the start of every job, there is a profit larger than usual on the material itself. Then, there is a profit on the installation work. And when the job is completed, you can be sure of a satisfied customer—a customer who will recommend his plumbing system and recommend the plumber who installed it.

Write for details of how the Hays Copper Plumbing Method insures greater profits for you . . . *on every job.*

HAYS MANUFACTURING COMPANY
ERIE, PA.

★ Exclusive with Hays—this double-seal provides double strength, safety and ease of installation. The 45-degree seat of the fitting holds the pipe in a wedge, making a seal that is absolutely tight. The 90-degree seat is the shock absorber. It (1) locks the pipe, (2) provides a second seal of positive tightness and (3) protects the 45-degree seal by absorbing all pulling strains and vibrations.

HAYS DOUBLE SEAL CONNECTIONS

—LAMINATED...

that's why *only* Whale-Bone-Ite.. can defy the Slam-Bang Public

LAMINATED construction secures for Whale-bone-ite exactly what the I-beam cross-section secures for steel girders—immense strength combined with light weight.

We and others have found it impossible to make a seat by any other method anywhere near as sanitary, as strong, or as light.

Fourteen years of on-the-job experience have failed to reveal a weakness. Now, more than a million Whale-bone-ite laminated seats stand the use and abuse of public toilets.

Those concerned with the design, construction and operation of buildings have found this experience safe to follow, so that today nearly all seats going into public toilets are of laminated construction.

Ends burden of replacement costs

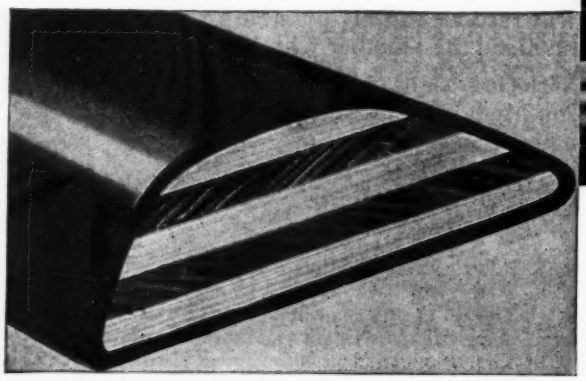
It is a well-known fact that public toilet seats receive constant, careless slam-bang abuse from the public. But the public cannot smash Whale-bone-ite. Its unbreakable laminated construction—guaranteed for the life of the building—immediately ends all replacement expense.

Its handsome polished Whale-bone-ite surface will last a life-time. It is easy to clean and non-inflammable.

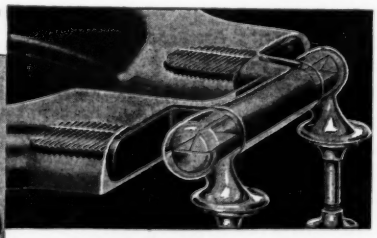
Whale-bone-ite Seats are found quite generally in the guest bathrooms of fine hotels. Many new apartment houses are equipping all toilets with them.

Send for free cross-section
—see its strength yourself

Figures show that on the average ordinary seats have to be replaced about every three years. If you want to end this needless expense, just as it already has been ended in more than a million public toilets in modern and remodelled buildings, simply install Whale-bone-ite Seats as fast as other seats wear out. Not only will the replacement expense end, but the toilets will be cleaner as Whale-bone-ite is easier to keep clean. Without obligation send for a free Whale-bone-ite cross-section. Simply address Dept. F-10, Seat Division, The Brunswick-Balke-Collender Co., 623 South Wabash Avenue, Chicago.



NOTE the Laminated Construction—a core of alternating-grain layers of hardwood—sealed and bonded to the whole by Whale-bone-ite. It is warp-proof and is guaranteed against warping, cracking, and splitting.



THE Whale-bone-ite steel hinge is moulded integral with the Seat forming an unbreakable unit. Covered with Whale-bone-ite, the hinge is as handsome as the Seat. It cannot tarnish. It is easy to clean.

Brunswick

WHALE-BONE-ITE

TOILET SEATS

THE BRUNSWICK-BALKE-COLLENDER CO. Chicago

Atlanta	Chicago	Detroit	Milwaukee	New York	Seattle
Birmingham	Cincinnati	Harrisburg	Minneapolis	Philadelphia	St. Louis
Boston	Cleveland	Houston	Nashville	Pittsburgh	Tampa
Buffalo	Dallas	Kansas City	Newark	Richmond	Washington
Charlotte	Denver	Los Angeles	New Haven	San Antonio	Montreal
Chattanooga	Des Moines	Memphis	New Orleans	San Francisco	Ottawa

Toronto Havana

Adelaide, Australia Sidney, Australia Johannesburg, South Africa

sizes of all soil and waste pipes and stacks are based on the demonstrated fact that a lavatory or wash basin discharges through its waste outlet about 1 cu. ft. or 7½ gallons per minute.

A Quotation from the Hoover Code

In order to freshen your mind on this point somewhat, before going further, we show a paragraph on this subject, taken from the Hoover report:

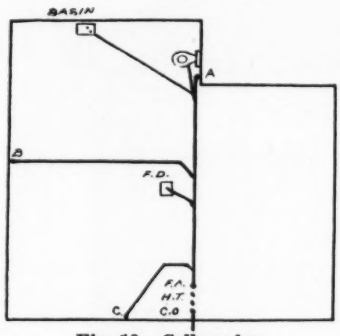


Fig. 10.—Cellar plan

Unit of Fixture Discharge

"In order to study the capacity of house drainage systems, it was found desirable to establish a unit of fixture discharge—a unit involving both volume and time; that is, rate. The rate of discharge of an ordinary washbasin having a nominal 1¼-inch outlet, trap, and waste was found to be about 7.5 gallons per minute, a figure so near to 1 cubic ft. per minute that the latter was taken as the definition of one fixture unit. The maximum rate of discharge of other fixtures may be expressed in terms of this unit. For example, it will be seen from Table 1 that a sink with a 1½-inch outlet is equivalent to 1½ units; a bathtub with a 1½-inch outlet, to 2 units; and a water-closet, to 6 units.

The table referred to gives the equivalents of the various plumbing fixtures, and as shown in the Hoover code, is as follows:

Table 1,—Fixture Unit

"The following table based on the rate of discharge from a lavatory as the unit shall be employed to determine fixture equivalents:

	Fixture Units
One lavatory or wash basin	1
One kitchen sink	1½
One bathtub	2
One laundry tray	3
One combination fixture	3
One urinal	3
One shower bath	3
One floor drain	3
One slop sink	4
One water-closet	6

"One hundred and eighty sq. ft. of roof or drained area in horizontal projection shall count as one fixture unit."

The secondary problem, based on these fixture equivalents, was as follows:

"Basing your estimate on Secs. 91 and 92 of the Hoover code, we would like to have you figure out the sizes of 4 stacks, A, B, C and D, also the size of the house drain serving these stacks. The stacks serve the following fixtures:

"Stack A serves 6 bathrooms.

"Stack B serves 6 kitchen sinks, 3 combination fixtures, 3 laundry trays and 3 slop sinks.

"Stack C serves 16 water closets, 3 lavatories, 2 slop sinks and 12 urinals.

"Stack D serves 6 lavatories, 3 shower baths and 1 floor drain."

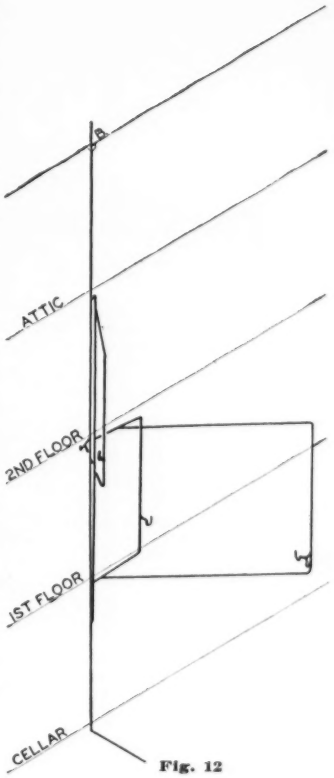


Fig. 12

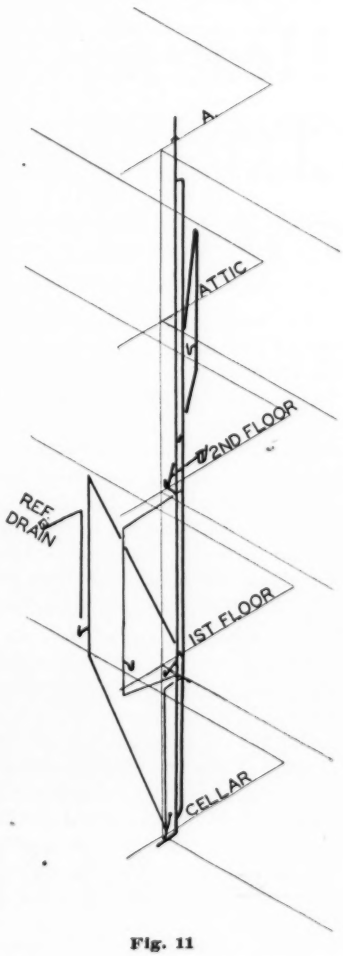


Fig. 11

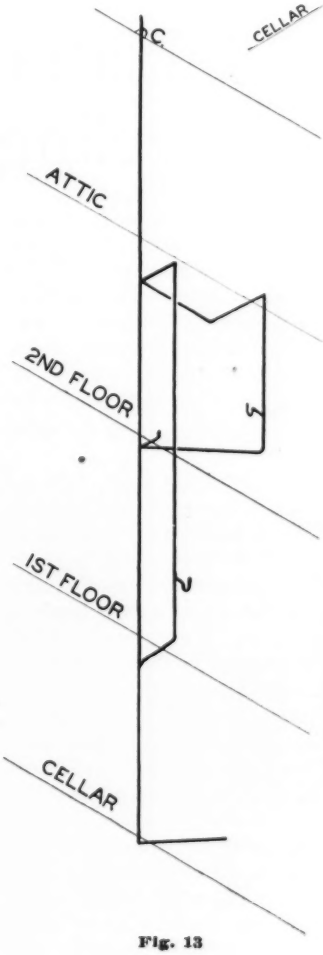


Fig. 13

It was also suggested that these Hoover sizes be compared with the sizes called for in the local plumbing codes of those submitting replies.

Both Messrs. Engstrom and Glose, in addition to sending in solutions of the main problem, have also sent in their results on the secondary problem.

The results of the two estimates based on the Hoover code are the same. In the following table we give them, together with the sizes demanded by the two local codes for the same service:

(Continued on Page 183)

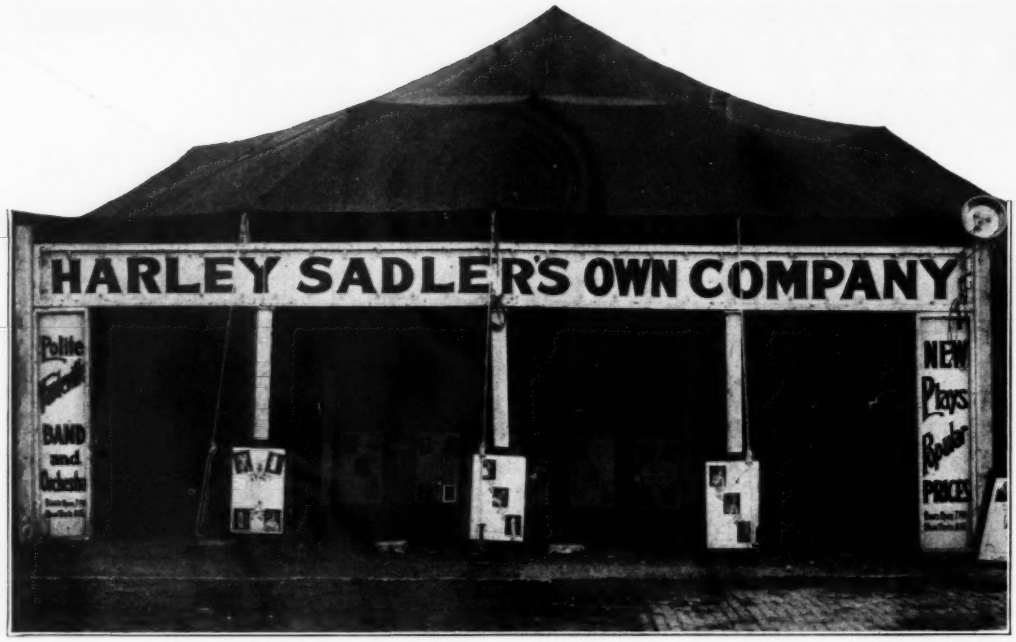


Fig. 1.—When this tent theater was set up in Waco, Texas, the early part of this year, freezing weather required that some form of heat be used. Steam was piped from a nearby plant and second-hand radiators were installed by a Waco plumbing and heating contractor

Radiator Heat *for* *A* Traveling Tent Show

WHEN Harley Sadler's Own Company, a tent show, set up their tent in Waco, Texas, the early part of this year, they were greeted with cold weather, including snow and sleet with the thermometer reading 28 degrees Fahr. Obviously, it was necessary to do something to keep the interior of the tent warm, the tent being 150 ft. long, 90 ft. wide, 10 ft. high at the side and running up to about 40 ft. at the middle. This made a total of 337,500 cu. ft. of air space to be heated.

It so happened that the rear of the tent was across the alley and near the entrance to Hill Brothers and Company, a plumbing and heating firm of Waco, and, as a result, Snead Hill was called in to advise what might be done. The installation of a regular heating plant was discussed but the temporary nature of the establishment made it out of the question in view of the expense involved. A solution to the difficulty was found in the purchase of steam from a milk pasteurizing plant located across the alley from the tent, at a distance of 110 ft. The boiler was gas-fired, high pressure, horizontal, and was rated at 25 h. p. The line from the boiler was run 2 in. underground and was enclosed in tile pipe. No insulation was used. At a point just outside of the tent a hole was dug in the ground and a swing joint was put in, clipped through a high pressure thermo-action drip trap. The condensation of the steam in the pipes, for lack of means to send it back to the boiler, was disposed of by introducing a system of bleeders at points of advantage. This allowed the water to leak out on the ground and the radiators to retain their heat.

Method of Heating the Tent

The accompanying drawing, Fig. 2, shows the methods used in heating the tent. Two-inch lines were run across the front to the north wall, and down the north wall to the back of the tent. At the end of this 2-inch steam main, a steam gauge was placed and set at 15 pounds pressure. In addition, a by-pass valve and another high pressure steam trap was placed in the line.

Down the center of the tent a 1½-inch steam line was installed with the same equipment on the end as that on the north wall. Likewise, a 1½-inch steam main was run down the south wall with pressure gauge, by-pass valve and high pressure steam trap.

Two small radiators were placed in the ladies' rest room and one was placed in the small space opposite where confectionery, fruit, etc., were sold. These were 150-sq. ft. Down each side of the tent was run a 1¼-inch return line beside the steam mains, terminating at the rear of the tent with a bleeder valve and a high pressure steam trap. The condensation blew out into the alley. There was a natural grade to the ground to take care of the pitch of the returns. The following radiators were spaced along their respective mains, six two-column, 45 inches, 100 sq. ft. radiators on the north wall; five of the same size radiators on the south wall; and down the center, five, four-column, 20-in. radiators aver-

Will the Soil Stacks You erect today--

Look like this in a few years?

Something like this is bound to happen unless provision is made for the expansion and contraction of the stack, and the natural settlement of buildings. For the see-saw movements, so caused, *soon buckle the stack*—then the joints will start to leak, pouring foul odors into the building.

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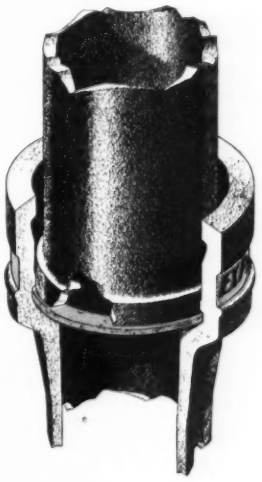

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Every owner who has learned about EXPAN-HUB has wanted it in his building. Architects, engineers and contractors endorse it as the real solution of this age-old problem.

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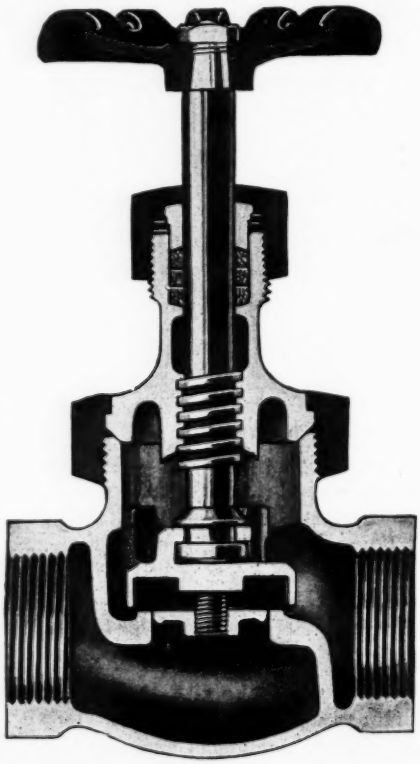

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As its name indicates, this is a valve with renewable disc, a feature which prolongs the life of the Re-New-Disc almost indefinitely. The disc holder, which slips on the stem, is accurately guided and held in place by lugs which fit snugly against the inner walls of the bonnet chamber. The lock-on, slip-off disc may be changed and renewed quickly and easily, and a "new" valve is ready for service.

The malleable iron stuffing box nut and bonnet ring lend durability to the valve—these parts may be unscrewed countless times without damage to the valve.

Walworth's Re-New-Disc is regularly furnished with hard composition discs for steam service; for cold water, gas or air, soft composition discs may be used. Discs of steam metals for special service are available.

All sizes have the lock-on disc except ¼", ⅜" and ½".

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aging 50 sq. ft. of radiation each. All radiators were direct-connected to the steam and return lines and air valves were attached. There was approximately a total 2,200 square feet of radiation in the tent. Back stage, two small radiators were placed in the ladies' dressing room and three radiators supplied the heat requirements in the men's dressing room. Also, there was one radiator at the back of the stage. The tent had three flaps down the outside walls which gave two dead air spaces. It was made air tight at the bottom by ditching and throwing earth up against the bottom of the canvas. The floor was covered with sawdust which had its effect reducing heat requirements. The tent was heated with some 20 to 30 lb. of steam pressure on the boiler in the coldest weather, which was about 28 degrees. After the tent received water, the top

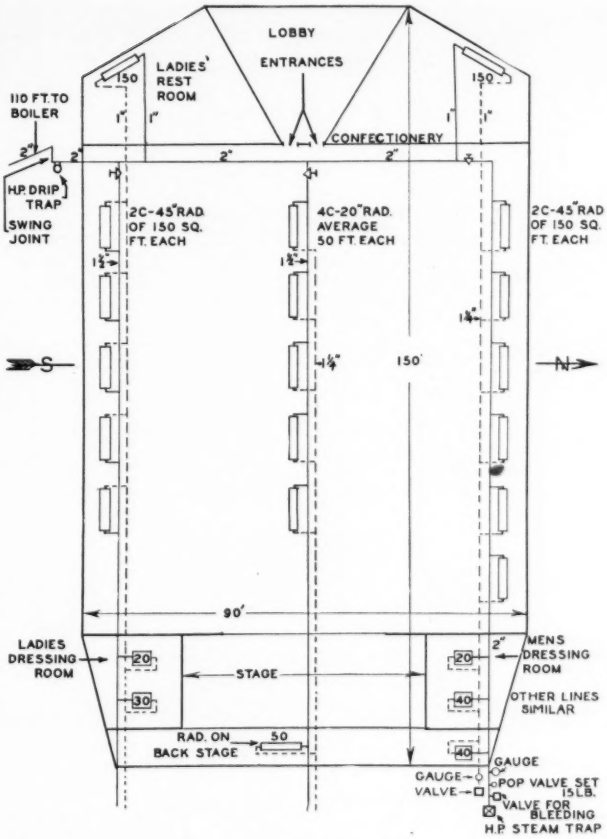


Fig. 2.—Floor plan of the tent showing the placing of the radiators and the sections which required heating

valves would blow off unless steam pressure had been cut down.

Lines of Radiators Heated in Turn

When first firing up, the center and south lines would be cut off allowing the steam to go through the north run heating the north radiators with the greater valve open on the end to blow the air through and run the water out quickly. After that line was heated, the center would be opened until it got hot and then the south line was opened until all radiators were functioning. After all the radiators were heated, the by-pass valves would be closed on the ends of the steam mains, leaving the thermal action of the traps to take care of the condensation.

With sleet on top of the tent the thermometer inside registered 70 deg. Fahr. against 28 deg. Fahr.

(Continued on Page 167)

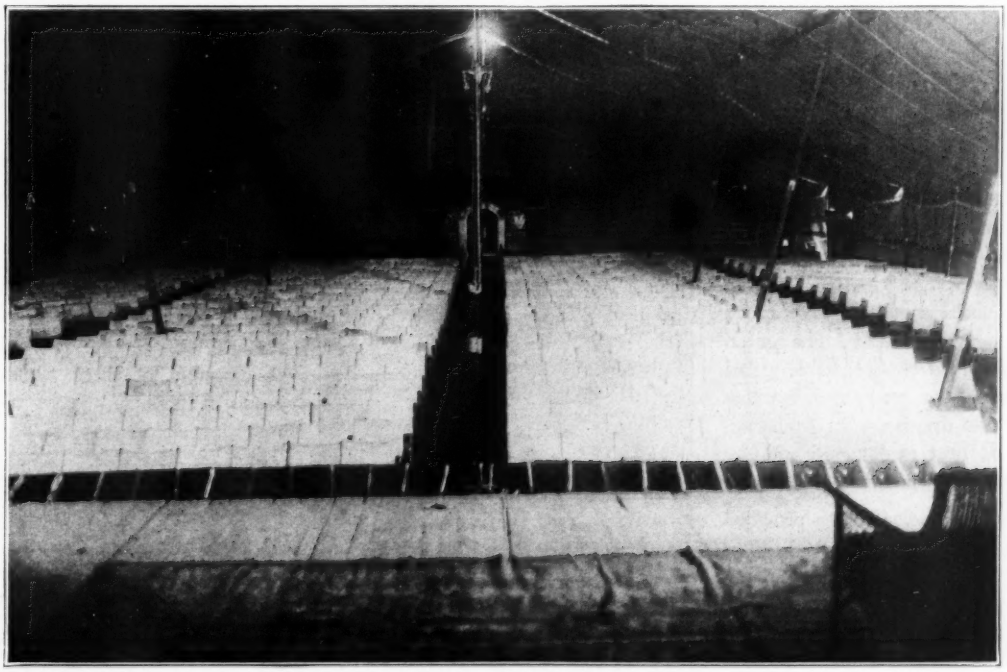
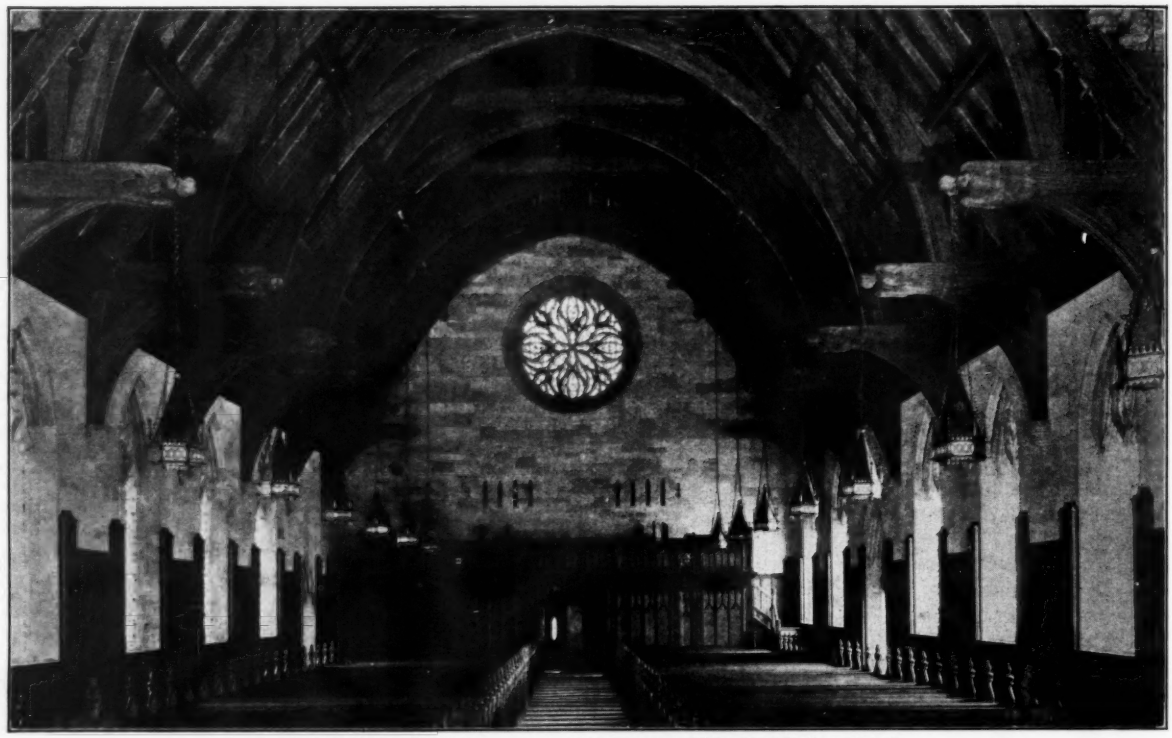


Fig. 3.—Interior view of the tent taken before the heating installation was made. The main lines of radiators were placed along the two walls and down the center aisle



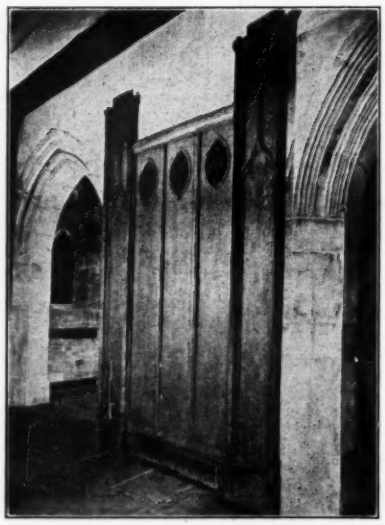
Nave of St. Paul's Church looking towards the entrance, Chestnut Hill, Pennsylvania.
Zantsinger, Borie & Medary, Architects, Isaac H. Francis, Engineer. P. Gormly Co., Heating Contractors.

How Can ROBRAS 20-20 Radiators Be Used To Provide HIDDEN HEAT In a Church?

HEATING a church with ROBRAS 20-20 Radiators in the wall, out of sight, and out of the way, can be accomplished in a number of ways. Illustrated here, however, is one of the most ingenious methods.

ROBRAS 20-20 Radiators were installed in the shallow space back of the wainscot and in the wall under the windows, in each of the window recesses. Air is admitted to the radiators behind the wainscot by inconspicuous floor grilles. The heated air is discharged by decorative grilles high up on the wainscot. By this method, two things are accomplished. High draft heat is obtained and the grilles are inconspicuous.

Additional radiation was provided by enclosing ROBRAS 20-20 Radiators in the end walls. The heated air is discharged by vents such as are visible by the door.



Method of using decorative grille in wainscot to conceal source of heat.

ROBRAS 20-20 Radiators so accelerate the circulation of air that the air directly under the roof and at the floor level, is more nearly the same temperature than is possible with any other type of radiation.

Another advantage of this more rapid circulation, is that the entire church is more quickly heated, once the heat is turned on. It is a flexibility of assembly of these radiators that makes it possible to use them in a place of almost any shape or size. They are adaptable.

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Floor and Area Drains

By HAROLD L. ALT

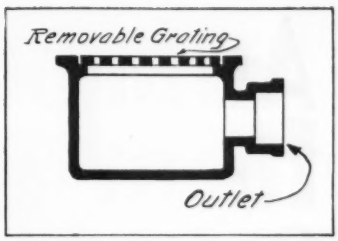

Fig. 1.—Illustration of an area drain with a removable grating and provision made in the bottom of the drain for collection of dirt

FLOOR drains and area drains are of quite similar nature and both are used for draining water from a flat surface. But, there are quite radical differences between the two, and these differences should be kept fixed in mind without confusion when installing such work.

In the first place, an area drain is really an outside leader box set at the ground level or down in a depression below the ground. It is exposed to the outside weather, only operates when it rains and is liable to have all sorts of dirt, leaves, sticks, and debris either carried to it by the rain water or blown into it by the wind. By its very location it is subjected to snow, freezing and long periods of disuse.

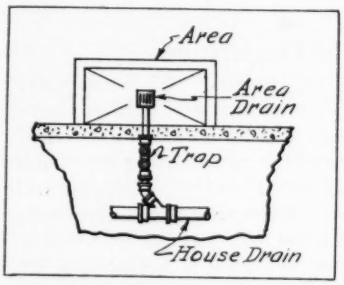

Fig. 2.—Plan of area drain lay-out showing trap located inside of building so as to protect it from freezing

With the floor drain conditions are somewhat different. It is located inside the building and, while it is likely to get some floor dirt, the quantity of foreign matter going into it is likely to be much less than with an area drain unless the floor drain is located in a boiler room where coal is used for firing. The floor drain is seldom subjected to freezing and is either used more or less constantly or not at all. By this is meant that if water reaches the floor drain at all it is likely to be caused by a more or less reoccurring event such as washing the floor, but if a floor drain is placed in such a position that it receives no use, or if the occupants of the building so operate the structure that no water reaches the floor drain, this condition is likely to endure for an indefinite period.

It is a generally accepted principle, in sanitary work, that area drains should not have integral traps and also that they should not be trapped through running traps located where the running traps will be exposed to freezing. Also, they should be able to be cleaned out regularly and easily.

This is taken care of by the area drain shown in Fig. 1 where the body of the area drain is made of heavy cast iron and has a dirt pocket of ample depth located below the drain outlet. The heavy bar grating is removable and the whole drain is of rugged construction.

The only way to protect a running trap on the area drain outlet is to place it inside of the building, as shown in Fig. 2, and the length of run from the area drain to the trap should be kept as short as possible. Area drains are never vented because they are not subjected to sudden flushes of water like plumbing fixtures but, on the contrary, have the flow of water built up as the rain falls and then gradually diminished as the rain ceases. Moreover, a vent on an area drain trap would help to dry the trap out more rapidly between rains than if the vent were not used.

Now the question may arise as to why a trap is necessary on an area drain if it is open to the outside air and why it cannot be left connected directly to the sewer without a trap. In answer to this it may be said that area drains and roof leaders are largely similar in purpose and area drains are trapped before being connected to a soil or waste line for the same reason that roof leaders are, viz.: to prevent a flow of sewer gas out of the outlet which might be—and often is—in very close proximity to a window.

Many area drains are located in areas supplying light and ventilation to basement windows; in other cases they drain concrete areas across which people frequently pass. In such locations, a flow of sewer gas up through the area drain not only would be objectionable but in some cases would be really dangerous.

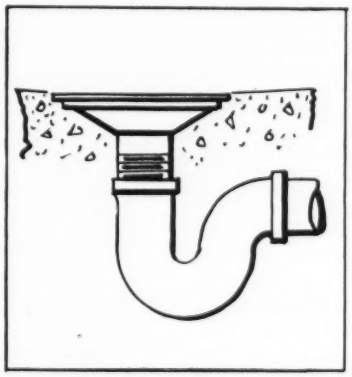

Fig. 3.—A floor drain where no precaution need be taken against freezing

The floor drain, not being subjected to freezing, may have its trap made integral with the drain so long as the trap does not depend upon an interior partition for its seal. A floor drain trap can also be constructed out of pipe or a regular running trap may be used. Fig. 3 illustrates a type of floor drain often used for showers with a P trap while Fig. 4 shows a drain in which the

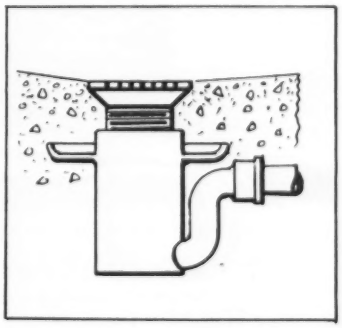

Fig. 4.—This is a type of floor drain where the trap is formed by a separate outlet run up from the bottom of the drain

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trap is formed by a separate outlet which is run up from the bottom of the drain.

An area drain properly trapped may be used as a floor drain but a floor drain cannot be used in place of an area drain on account of the freezing element.

As a general thing special floor drains are used in large boiler rooms, these often being built in the form of brick pits about 24 inches × 24 inches × 30 inches deep with a cast iron bar grating and frame on the top. A 4-inch outlet is taken off of these pits near the top and carried through a 4-inch running trap into the sewer. This type of floor drain is able to have quite a lot of coal spilled into it before seriously affecting the operation of the drain.

◆

Units of Temperature

Temperatures between freezing and boiling may be measured by the sense of heat and cold conferred upon animal life. With the human being equipped with a temperature regulator maintaining his system at a fixed temperature when he is physically well, there is a very acute sensitiveness for temperatures to which his external body has become accustomed. He measures temperature on a scale of *hot* or *cold* from a cultivated sense based on his personal experience. Since this experience varies in individuals, hot or cold does not mean the same to each individual.

Temperatures are usually measured by some fixed values. In most engineering work in English speaking countries the Fahrenheit thermometer is used with the two fixed points on the scale; the melting point of ice and the boiling point of water at sea level. The former on the Fahrenheit scale is taken as 32 and the latter at 212.

For much of the scientific investigation work in the English speaking countries and for practically all temperature determinations in other than English speaking countries of Europe and America, the Centigrade thermometer is used. On this thermometer the temperature of melting ice is taken as the zero point, and the temperature of boiling water is taken as 100.

In some industries, a Reaumur scale is used with the melting point of ice taken as the zero point and the boiling point of water as 80.

◆

No Man is Indispensable

I care not what your place may be—a job that's most laborious, with mighty little salary or one that's fat and glorious. But, be your labor great or small; of this you must be sensible—some other guy can do it all—no man is indispensable!

When you begin to swell with pride, and cater to the gallery, and put on lots of "dog" and "side" because they've raised your salary; why, then's the time you'll tumble quick, such ways are indefensible; some other guy can do your trick; no man is indispensable!

It's all well enough to know your work, and know just what to do with it, but don't imagine that the earth will quit when you are through with it; no, it will roll upon its way, and—what seems reprehensible—some other guy will draw your pay; no man is indispensable!—Berton Braley in Forbes.

A frank, entertaining and true story by a man who tells

How I Became a Merchant

HOW I became a merchant is a long story if I go back to the days when I took the only thousand dollars I had to my name to buy what I thought was a lemon in the plumbing business. But if you can stand for it, here goes.

As a young fellow, I thought I'd like to be a salesman. After some time knocking around, I finally located with a manufacturer of neckwear and after a short time in the factory getting their dope, I was started out on the road. I made a fair showing but after a while made up my mind I wanted to get into the plumbing business. I resigned my position and again looked around to get a job as a helper. After many refusals, I was finally taken on by the man whose shop I later bought. You may wonder why I take the time to tell you how I started out on my business career and all about selling neckties, but later you'll realize how that early training in salesmanship stood by me when I needed something to back me up mighty bad.

I went through the usual course of helper, junior mechanic and journeyman and eventually came to be foreman in that shop where I started out to learn my trade. Everything went along very well for a number of years and then the boss was taken sick. After a time this illness became chronic and he was no longer able to give the business his personal attention. The family undertook to run the business without the practical knowledge necessary to conduct it successfully. After many months of these conditions my boss died and the estate offered his business for sale.

I Buy a Business

By this time there was little stock left and not much of the good will, but having worked there so long and

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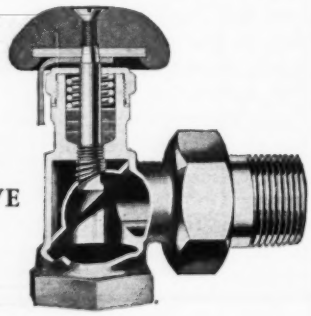

ARCO PACKLESS
HOT WATER VALVE
No. 901

IT is hard to make an estimate for the small job when it is necessary to "cut corners" in order to keep the price down. But now you can give the owner all the advantages of the No. 901 ARCO Packless Hot Water Valves without raising the bid, and yet actually save money for yourself. On a ten radiator job, the usual cost of a return trip to repack ordinary valves before the job is turned over to the owner is at least $3.50. The difference in cost between the ordinary valves and No. 901 is much less than that.

And these valves bring with them these 3 outstanding advantages:

1. Packless — complete protection against leaks without repacking.
2. Swinging plate—acts as a cleaning tool, impossible for the valve to stick.
3. Equalizing — adjustable stop, makes it possible to balance the job after installation without expensive pipe changes.

STANDARDIZE ON No. 901 ARCO PACKLESS —One of a complete Packless line for Steam, Water, Vapor or Vacuum, made in Angle, Corner and Gate patterns.

AMERICAN RADIATOR COMPANY

Makers of a complete line of guaranteed heating accessories

knowing almost everyone of his customers, I made up my mind I would buy the business for what I could get it and gamble on my ability to hold what good will was left; win back those who had drifted away. I paid eighteen hundred dollars for that business; one thousand in cash and eight hundred in notes maturing monthly. The day after the transfer of the business I opened my shop with practically no money in the bank and sat down at my desk to wait for the mail man or the telephone to bring me in some orders. In order to do things right, I had employed a young lady as bookkeeper and office clerk. My shop was located on one of the main avenues of New York city, on the east side, in the seventies, very close to the aristocratic section of Madison Park and Fifth avenues. It was from this element of the city's wealthiest residents that my boss had most of his business and I had visions of early success and a rapid accumulation in my bank account.

The first month, then the second and third, went by with very little in business to show for my investment. When I had a request for an estimate, somehow or other I was always too high; even with those who were supposed to be patrons of the man I had succeeded. The exchequer in the meanwhile, was shrinking with appalling rapidity. In fact, I was almost at the point where I would wonder where I'd get enough money to pay my rent. I had never enough work at any time to keep a man busy and in fact not enough half the time to keep me occupied. I laid off the girl and hung a card on the door telling where I could be located when I went out on a job. And so it went on until I got to wondering what kind of a fool I had been to part so easy with my hard earned money.

A Visitor

It was noon-time on a certain day and I was sitting at my desk gloomily wondering if the best thing for me wasn't to go out and get a job with someone else and close up my shop. While I was in this mood, a specialty man came in. Say, the breezy, snappy carefree way that bird walked up to me, pushed out his hand and said, "How do you do; are you Mr. Bell?" When I told him I was, he said, "Well, my name is Staley. I'm glad to know you." Now having been a salesman myself I had to admire the cold assurance of this fellow. He sat down, took off his hat and proceeded to make himself comfortable for a visit. Knowing the state of my mind and business, I could not help feeling sorry for him and started two or three times to tell him I needed nothing and he was wasting time, but something stayed my tongue. He was such a seriously cheerful chap, I really wasn't in a hurry to see him go. He just seemed to ease me out of my fit of "dumps."

He talked about everything under the sun, but always business topics. At first he was talking quite a lot. Later on I noticed he wasn't talking so much. He was asking so many questions, that it began to dawn on me that he was drawing from me my whole experience, even back to the days when I had sold neckties. Do you know, that chap sat there, pumped me dry on all I knew about my business, what it was in days gone by and what it was then; and all about my ambitions and hopes, right down to the moment of our chat. In all this time he didn't say a word about his line, what

he had to sell and in fact barely referred to who he represented; and that was all. His entire interest and theme of conversation seemed to be an animated interest in me, my business and how I expected to pull it together to make it successful.

Frank and Friendly Advice

All at once he turned, from the sympathizing friendly attitude of listening to my woes, into a rapid fire, quick thinking, speaking, acting and cruelly analyzing critic. I want to tell you right here, he didn't spare me one iota. He asked me if the U. S. Government was working for me or whether the telephone company had salesmen for operators who were looking up business for me. Asked me how I thought any man got up in the world; if it was like Micawber, waiting for something to turn up. By the time he cut loose on me and was going ten minutes, I was ready to throw him out; but there was so darn much common sense in all he said, he seemed to have sized me up so blamed right, that I couldn't find a real reason to shut him off and end the straight from the shoulder stuff he was telling me. It wasn't offensive but it was plain and darn plain talk.

He pointed out to me that instead of a lemon I had bought an el dorado; the very location of my shop, with its proximity to those residences of wealth, the complete list of names, and my intimate knowledge of the plumbing layout in every one of those homes, were worth more than twice the eighteen hundred dollars I had paid for it. "Get out and dig," he said. "No man ever struck gold without digging for it. The men who have worked the hardest are not the laborers with pick and shovel. They were and are the very men who own the homes where you should be doing the plumbing work. The business was neglected after your boss died, but those people still know this shop and its reputation. If you want to continue to neglect the needs of those former patrons by waiting for them to come to you, you deserve to work for some one else."

Well that fellow got me all pepped up. I began to see my dreams all realized, that the opportunity was there. But in my days of working as a mechanic, I forgot all the "up-and-at-'em" tactics I had been taught that sold neckties when haberdashers didn't want to buy neckties. And so, after almost an entire afternoon of talking things over he went out, saying he would be back again in a week. It seemed odd to me then, too; he never once opened his sample case or said a word about his line. His parting shot was, "Think over what I've said."

Now, I want to tell you, I did some thinking and a lot of it too. I wasn't married in those days but I told my girl all about him and what he had said. And I found myself wondering what day he'd be back. Wondering what I could do to get the ball rolling. At the end of about a week he came in again and his first remark was, "Well, what have you been doing since I saw you? Getting things going?" "No," I replied, "to be frank with you I have done a lot of thinking, but I've really been looking for your return. I'm wide open to anything that is sound and will start this business going."

New Plans

He said, "Mr. Bell, if you mean that, I'm going to pitch in and do all I can to help you. Let me have some paper."

I gave him some and then he wrote out a letter that was a form of announcement of myself as successor to the boss, and how I was equipped better than any other plumber, to competently and economically look after their work, because I knew every pipe line, riser and branch in their homes. That I had purchased all that was left of what had been a successful business; and that residue was the good will of those who had favored my boss with their work for so many years. That I was going to call, at their offices in the day or their homes in the evening, some time soon, to tell them how I intended to give a better and more efficient service than they had had in the past.

When I had read this draft of the letter, he suggested that I have them mimeographed, addressed, signed and mailed out. Then he said, "Now, Mr. Bell, you must follow up these letters promptly. Don't go to see them in old clothes or overalls, looking like a mechanic. Dress up, put on your best front, and when you call at their homes go to the front door and present your card asking for the master of the house by his name. Whether you get a long or short interview don't lose your opportunity to sell them your service plan." "What is that?" I asked.

"Why, of course, I hadn't come to that," he said. "You must have something different from your competitors to offer," he continued.

"Your service plan is going to be an insurance of service on all the work you do for anyone. For instance, when his family goes away in the early summer to their sea shore or country home, you will turn off the water, empty the lines, take down and prepare the heating plant for its summer rest. When they return you will re-washer and pack all faucets and valves, overhaul closet tanks, fill up the boiler ready for firing and put everything in A-1 shape, all for a flat charge, and guarantee all parts you overhaul against further repairs until you shut off the system the following spring.

"You must figure, from your knowledge of each one of these houses, just what your cost of everything possible to do will be and then charge a price that will give you a profit above the cost of any emergency under your guarantee. Until you get enough work to employ

(Continued on Page 155)

Heating *in* Switzerland

HEATING installations which may be operated by either coke, oil or electricity are finding increasing favor in Switzerland. A recent report from Winterthur, Switzerland, states that the advantage of this system consists in the adaptation of ordinary central heating boilers to oil burning, the same boiler being used to suit a different fuel and altered conditions of working. Oil burning, it is stated, is well suited to intermittent and temporary heating, as for example the sudden warming of a large workshop or of a dwelling house, when, either in the autumn or in the spring, quick and efficient warming is required.

Fig. 1 shows a cut away view of a boiler used in Switzerland. This boiler is fitted with an oil reservoir which insures its operation for about 8 hours without refilling; its efficiency is independent of the quantity of oil in the reservoir. All of these boilers, of whatever power they may be, are built on the same principle and in the same way.

Our correspondent goes on to say: "At times a sudden increase of heat may be wanted for a limited period, as in times of great cold, similar to the peak load of electricity in lighting. To suit such cases a combination is used by which indirect electric heating is brought to the help of a coke-burning boiler; this is shown in Fig. 2. The electric furnace is mounted in parallel with the coke boiler. Electric furnaces are also used for quick warming up, when, either towards the end or the beginning of winter, it is not cold enough to call into play the more expensive permanent central heating plant. The electric furnaces are provided with metal resistances or with electrodes, the former for continuous or alternate current below 500 volts, the latter for alternate current up to 15,000 volts.

"In certain cases water is used to store the heat which may be generated during that part of the night when electric current is cheaper. The hot water so accumulated is drawn into the pipes in the day time, an automatic regulator keeping the hot water in the accumulator at a fixed temperature.

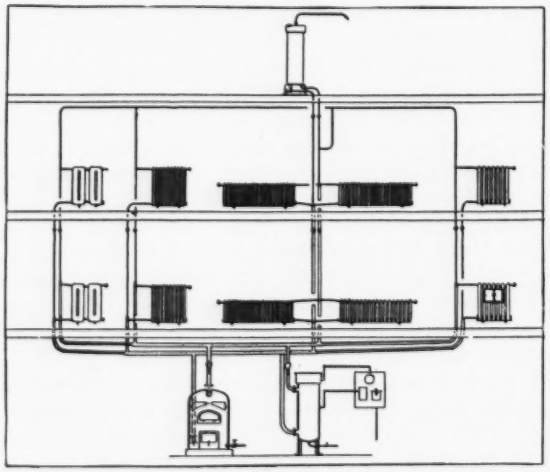

Fig. 2.—Electric furnace mounted parallel with coke boiler

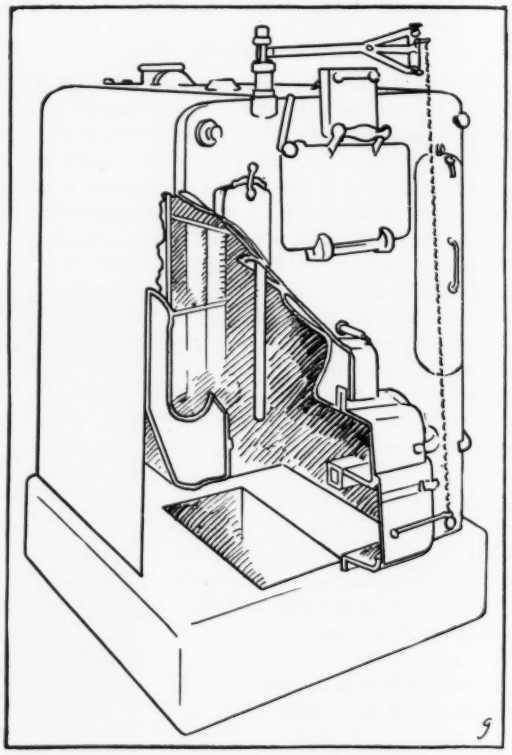

Fig. 1.—A Swiss oil-burning boiler

Heating a Swiss Hospital

"The Canton hospital at Glaris, Switzerland, has been provided with a very interesting heating plant. This plant, which is described below, heats the buildings and operates a laundry.

"The plant consists of three boilers set for a pressure of 8 kilo, each with a heating surface of 50 square metres, with a single economizer having a heating surface of 72 square metres. In order to warm up the feed water, two cross-current reheaters have been provided. Their heating surface is 24 square metres each. They are fed by steam at a pressure of 4 kilos and have a heat capacity of 2,060,000 calories.

"The circulation of the water is done by centrifugal pumps, one of which can be seen in Fig. 3. In order to provide for varying conditions of work two pumps of different power have been used. The small one can throw 40,000 litres per hour against a pressure of 8 metres. This is sufficient to insure the circulation of all the water required to heat the buildings when the outside temperature is 5 degrees C. When the outside temperature falls to as low as —6 degrees C., the larger pump is used. It can throw 70,000 litres per hour against a pressure of 9 metres. Should the temperature go down farther the two pumps are used in parallel, by which the required heat can be maintained even when the outside temperature goes down to —20 degrees C. The power of the small pump is 3 horse power while that of the large pump is 5 horse power. Their normal

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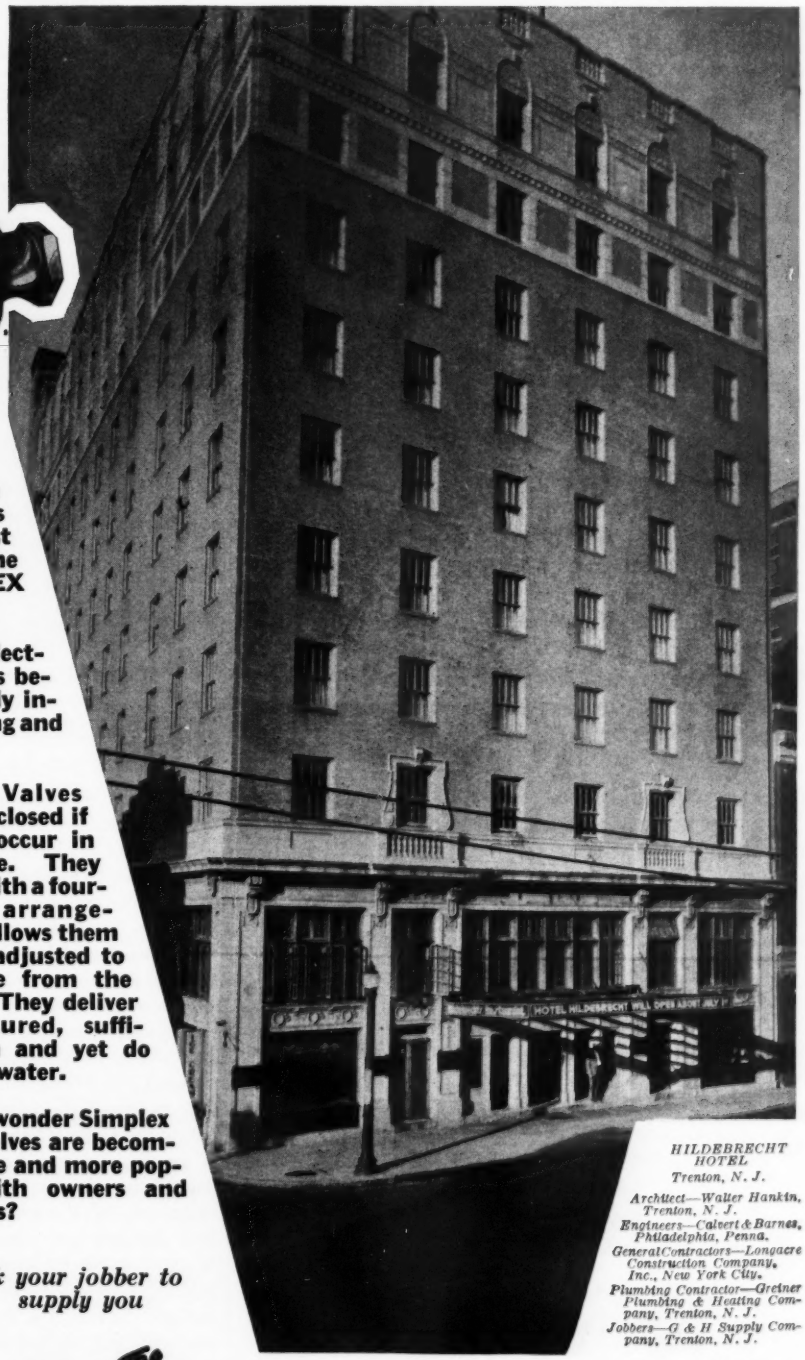
The Simplex Flush Valve



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This new modern building and its owners are safeguarded against wear and trouble by the exclusive use of SIMPLEX FLUSH VALVES.

These Valves were selected by careful buyers because they are easily installed, long wearing and efficient.

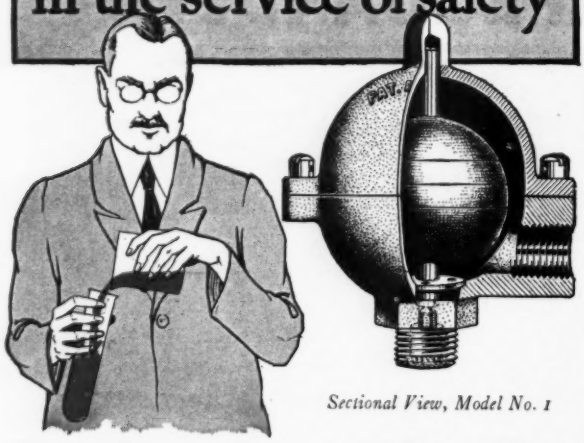
Simplex Flush Valves lock themselves closed if a leak should occur in the relief valve. They are equipped with a four-way by-pass arrangement which allows them to be easily adjusted to any pressure from the OUTSIDE. They deliver even pressured, sufficient flush and yet do not waste water.

Is it any wonder Simplex Flush Valves are becoming more and more popular with owners and builders?

Ask your jobber to supply you

The BEATON & CADWELL MFG. CO.
Established 1894
NEW BRITAIN, CONN.

Shoulder to shoulder in the service of safety



Sectional View, Model No. 1

Red Liquids... and Red Tops

The research chemist heats a test tube over a pale blue flame, and watches carefully the changes which take place. In his service to science, he is also a servant of human welfare and public safety.

Serving public safety in a different capacity is the Red Top Relief Valve. A Model No. 1 Red Top installed in a domestic hot water supply system, protects against explosions and other ruptures caused by skyrocketing pressures.

Red Top is simple in construction and operation, working automatically on the gravity principle, relieving at 50, 75, 100 and 130 lbs., as set.

So reliable is its operation that it bears the approval of the Underwriter's Laboratories, Inc., America's foremost testing organization. So, too, does the Red Top Relief Valve Model No. 2 which relieves at 30 lbs., and forms the basis of an efficient and economical pressure system of hot water heating.

NEPTUNE METER COMPANY
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Red Top Relief Valve

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Please send me a copy of the new edition of your folder, "Protection," which describes Red Top Relief Valves and their operation.

Name.....
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speed is 950 revolutions per minute. They are connected directly to 6 pole motors of which the speed can be reduced by 50 per cent.

"For purposes of control, the pumps are provided with

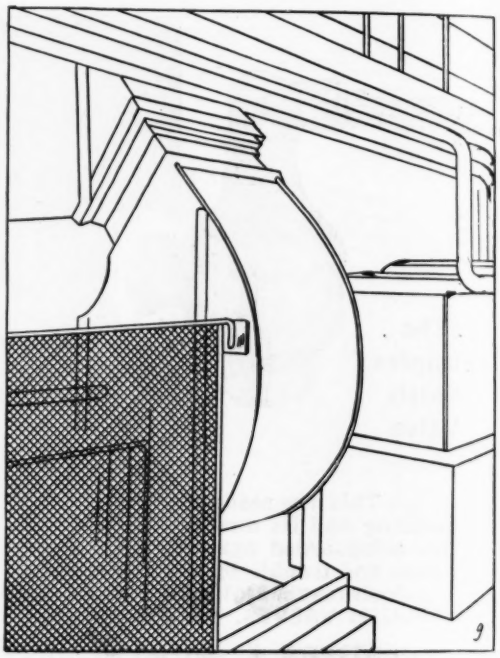


Fig. 3.—One of the centrifugal pumps in the Canton hospital in Glaris, Switzerland

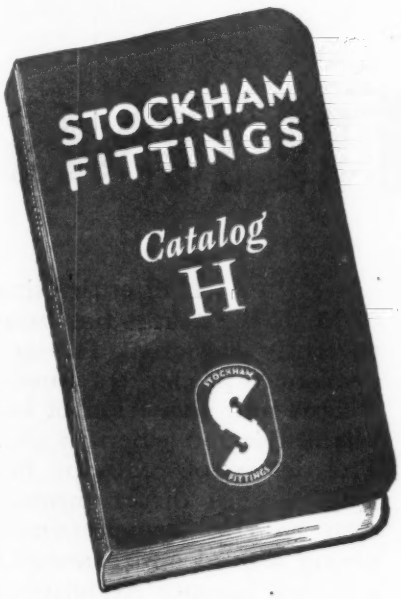
differential manometers, while the heat in the water heater is controlled and regulated automatically.

"The wards are heated either by cast iron radiators, or by worms of smooth piping. Well insulated piping joins up the various buildings to the main station. There are two vertical sheet iron cylinders, each of a capacity of 5,000 litres in which the water is heated for baths, washing, kitchen, etc. Water is also heated by metal resistances which are provided with coils for steam heating.

"In order to get the fullest advantage from oil fuel the boilers are provided with suitable fittings. The oil leaves the burners in an atomized state through compressed air, which is compressed by an electric ventilator. The pipe which carries the oil to the burners is placed below the latter so that it cannot overflow into the boiler. A small oil pump keyed on the shaft of the ventilator draws the oil to the level of the burners. Here it is taken up by the compressed air, atomized and thrown into the fire pot, which is provided with a cone in refractory earth in order to ensure quick relighting, should the flame go out by accident. In case of stoppage in the electric current the ventilator as well as the oil pump is stopped, and the oil stops in the pipes and cannot go as far as the burners without the help of the pump. Besides these precautions, thermostats have been provided at various places for greater security.

"One frequently sees in Switzerland, groups of buildings with one central heating plant. A plant of this kind has been set up at the insane asylum of Stefansfeld near Strasburg, Germany.

THIS BOOK FREE



THIS *new* edition of Stockham's Catalog contains more than 300 pages of useful and helpful information for the fitting buyer and user. The entire Stockham line is described and illustrated. Vest pocket size; bound in imitation leather; conveniently classified and indexed. Former editions are in wide use, but you want the new one. You'll find it mighty handy! Just fill in and mail the coupon . . . *today* . . . the book will reach you promptly.

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DESIGN in MIF FITTINGS

THE entire line of M. I. F. fittings has been carefully designed for appearance, proper thickness, weight and reduction of internal friction when in use. The design of reducing fittings are in direct proportion to the straight sizes, giving a good appearance to a piping layout. Weights of reducing sizes are kept uniformly graduated, which means a saving in weight on most sizes. The thickness of M. I. F. fittings is sufficient to give a sound casting with plenty of strength, and yet not too thick to penalize the buyer with extra weight.

Many laboratory tests conducted at Mason Laboratory of Yale University have been used to prove final designs and dimensions as satisfactory.

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MECHANICAL O.K. • INSPECTION O.K. • MIF • FINISH O.K. • STANDARD

Air Conditioning in a Paris Bank

"We must now mention the system of heating by blowing in hot air. Two air-condensers, similar to that which is shown in Fig. 4 are working in the Bankers' Trust Co. in Place Vendome in Paris. The working of a plant of this kind consists of three operations:

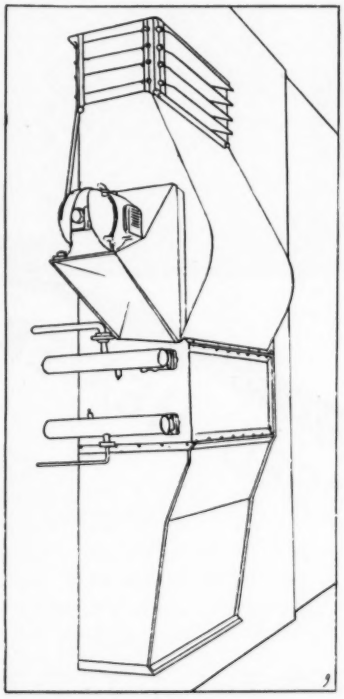


Fig. 4.—An air-condenser

"First operation. The heating of the air drawn from outside in the first heating chamber.

"Second operation. The air is washed by drawing it through apparatus formed by several pulverizers; it is now nearly cold and it is united with water and is fit neither for ventilation nor for heating.

"Third operation. The reheating of this air in a second heating plant; at this higher temperature its relative dampness has now attained the best hygienic proportion, that is 65 to 70 per cent.

"In a plant of this kind the air cannot only be heated to temperatures which may be varied within large limits, but it may also have its relative dampness controlled, quite apart from that of the air outside. During the summer this plant can be used to cool down the air.

"In another modern installation in a workshop the air is drawn in at the under part of the pump by a centrifugal ventilator keyed directly to an electric motor.

"It is warmed in a chamber fed either with steam or with hot water and is then forced up through the top of the pump into the buildings to be heated. Movable venetian blinds direct the air either in a horizontal direction or obliquely towards the floor."

◆

Sensible and Latent Heat

When we heat a kettle of water to the boiling point, it continues to get hotter and hotter until it reaches the boiling point. This heat is sensible heat. When the boiling point is reached no further change of temperature occurs within the kettle as long as the pressure remains unchanged. For the entire period of boiling away or vaporizing of the kettle of water after the boiling point is reached no increase of temperature is possible. Yet more and more heat is being added to the kettle to vaporize the water. The heat is being used to change the water from the form of water to the form of a vapor.

The amount of heat that has been added to change it from its liquid form to the vapor form of water is known as the latent heat of vaporization of water.

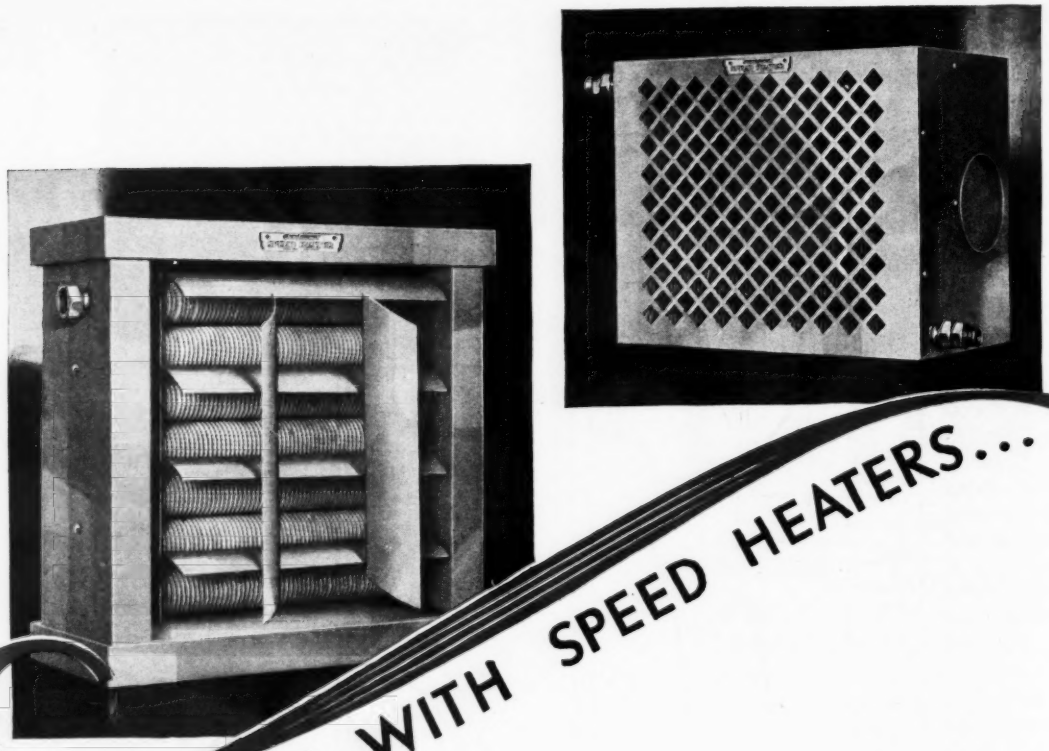
Bowl and Seat in One Piece

The New Sanimore embodies advanced design and principles that are sure to meet with instant approval wherever it is shown.

The seat being hollow and independent of flushing is not chilled by water passing through bowl.

This combination is a real merchandising opportunity. Put one on your showroom floor and watch your sales increase.

Keystone Pottery Co.
TRENTON N. J.



STEP OUT WITH SPEED HEATERS...

If you are in a profit-earning frame of mind . . . listen!

The heating of industrial buildings and large floor areas is now done, in almost every case, with suspended air heaters. The work is plentiful and profitable.

In your bid for business, SPEED HEATERS will help you overcome killing competition.

A big advertising campaign is behind them. The heaters themselves have points of superiority that make them stand out. The prices are lower. Sturtevant is behind them. Our Sales Co-operators are behind you and the market is wide open!

Step out with SPEED HEATERS . . . our new booklet *"Tips on Heater Selling"* will give you ideas and show you how and where to go after heating jobs. The coupon will bring you a copy—and if you will check the square, one of our Sales Co-operators will drop in to see you at the first opportunity to explain our proposition in detail.

Don't forget the coupon.

THE PRICE IS 'WAY DOWN

COUPON

B. F. STURTEVANT CO.
Hyde Park, Boston, Mass.

Kindly mail me SPEED HEATER particulars, also copy of "Tips on Heater Selling."

☐ I'd like to see a Sales Co-operator when he's in the district.

Name of Company.....

Street Address.....

City..... *State*.....

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SPEED HEATERS
"More Heat Less Steam"

Figuring *a* Dryer *for an* Enameling Plant

By R. H. ANDEREGG

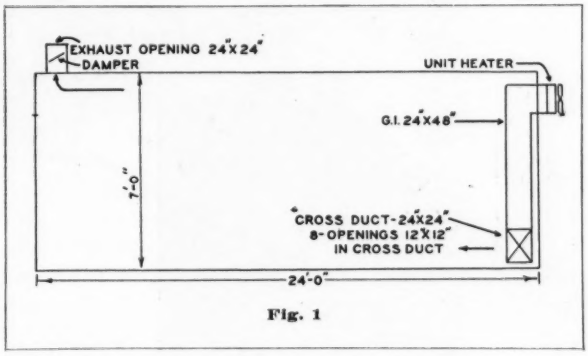


Fig. 1

IT IS really surprising, when one considers the numerous possibilities available for special work in the various manufacturing plants. While a great deal of this work is somewhat out of the average scope which the heating contractor is called upon to do in the ordinary day's program, nevertheless, the effort required to figure and design suitable apparatus, is more than repaid in the extra profits secured after the job is completed.

It is not unusual to be able to save considerable money for the customer; one case which comes to mind resulted in equipping one man with a dryer so that he did the work which five men were doing previously and the class of work performed was better because rejections were reduced 10 per cent under previous records.

Another problem which came to my attention, recently, involved a dry room for an enameling plant. The conditions specified by the customer are given below, also the solution to the problem.

1—Dry room 11'-0" wide, 24'-0" long and 7'-0" high; frame construction; heat transfer coefficient 0.33 B.t.u. per degree difference in temperature.

2—Air to be changed in room at least 2 times per minute.

3—Temp. of 180 degrees Fahr. to be maintained in dry room.

4—Dry room located in factory which is heated to 70 degrees Fahr.

5—Material to be dried included:—
300 lb. of wood (Painted).
1,000 lb. of cast iron (Painted).

6—Steam pressure available 10 lb. per sq. inch.

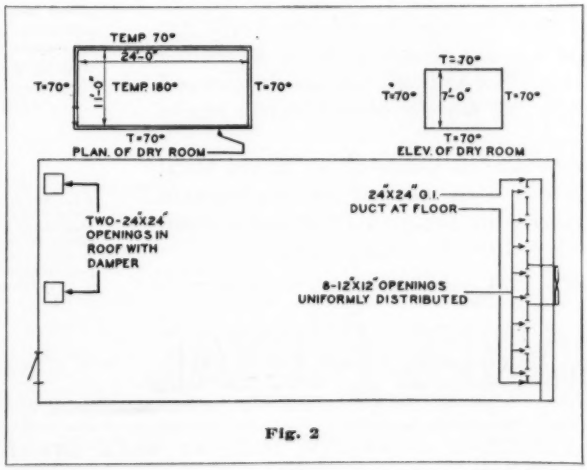


Fig. 2

Those of you who remember the articles written in DOMESTIC ENGINEERING previously on figuring radiation without the use of tables should have no trouble in following the method of solving this problem.

7—The owner desired to accomplish this work by using a unit heater, the discharge from the heater being carried to the bottom of the room and the exhaust taken from the top on the opposite side, see figures.

First of all then, we have, $11 \times 24 \times 7 = 1848$ cubic ft. which is the volume of the dry room.

Since the air must be changed 2 times per minute, we have, 1848 × 2 or 3696, say 3700 cu. ft. fan capacity needed.

Calculation of Heat Requirements

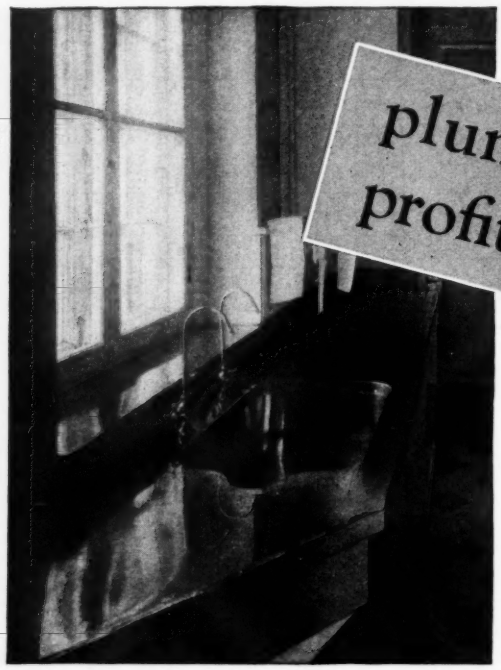
Then we will have to consider the amount of heat needed to maintain the dry room temperature at 180 degrees Fahr. This will fall into two divisions: The heat loss through the walls, roof and floor, and the heat absorbed by the material to be dried. In other words the wood and iron coming into the dryer will be at a temperature of 70 degrees Fahr. and will have to be raised to 180 degrees Fahr.

Heat loss through dry room is figured as follows:—

2 side walls
$24 \times 7 = 336$ sq. ft.
2 end walls
$11 \times 7 = 154$ sq. ft.
1 floor
$24 \times 11 = 264$ sq. ft.
1 roof
$24 \times 11 = 264$ sq. ft.

Total surface, 1,018 sq. ft.

Here's a modern sink



plumbers find profit in selling

Monel Metal sink installation in the residence of Philip H. Haselton, West Orange, N. J., by JOHN DAUM of West Orange, N. J.

Monel Metal's beauty appeals INSTANTLY

If you believe your time is worth money, you will appreciate the profit possibilities in a sink with instant appeal.

Your customers will be instantly attracted by Monel Metal's silvery lustre—its appearance of shining cleanliness. But when you tell them of Monel Metal's other advantages, they will realize that a Monel Metal sink is a good investment—the logical purchase for a modern home.

A Monel Metal sink can be made to meet individual requirements—in size, design and convenience features. Monel Metal will not rust and it resists corrosion. It has no coating to chip, crack or wear off. It resists denting and scratching. No wonder Monel Metal's beauty is permanent.

Talk to your customers about Monel Metal installations both for new and replacement jobs. Also write for more information about Monel Metal for the modern home.

SEND FOR BOOKLET—"SINK DESIGN CONTEST"

Monel Metal sinks are being sold to your customers through color advertising in magazines reaching 5,000,000 families every issue. Watch for these advertisements.

Monel Metal is a technically controlled Nickel-Copper alloy of high Nickel content. It is mined, smelted, refined, rolled and marketed solely by The International Nickel Company. The name "Monel Metal" is a registered trade mark.

MONEL METAL

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL STREET, NEW YORK, N. Y.

We then can figure the heat loss from the following formula:—

B.t.u. loss = Sq. ft. × Temp. diff. × Coeff.

In this case the sq. ft. are 1,018.

Temperature difference is 180 degrees—70 degrees, or 110 degrees.

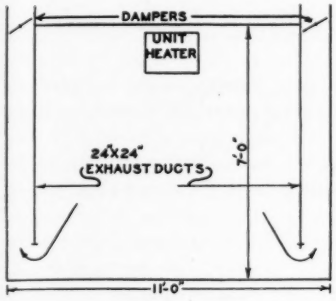


Fig. 3

Coefficient as given previously is 0.33.

Then 1,018 × 110 × 0.33 = 36,953 B.t.u.

Heat absorbed by material is figured as follows:

Specific Heat

Before proceeding with the detailed calculation we will have to become acquainted with a new term known as specific heat.

The specific heat of any substance is the ratio between the heat required to raise a unit weight of that substance one degree Fahr. and the quantity of heat required to raise the same weight of water one degree Fahr.

Studying this definition will allow you to simplify it so that it boils down to the following:—

One B.t.u. will raise one pound of water one degree Fahr.

0.327 B.t.u. will raise one pound of wood one degree Fahr.

0.12 B.t.u. will raise one pound of iron one degree Fahr.

0.327 and 0.12 are the specific heats of wood and iron and their value for different materials can be found in various heating or mechanical handbooks.

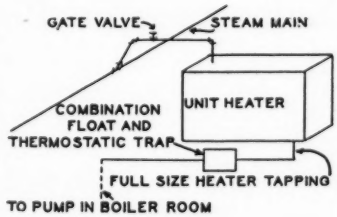


Fig. 4

Now coming back to the figures, we have, 300 × 110 × 0.327 = 10,791 B.t.u. required to raise the temperature of the wood to 180 degrees Fahr.; 1,000 × 110 × 0.12 = 13,200 B.t.u. required to raise temperature of iron.

Then 36,953 B.t.u. loss through building construction
10,791 B.t.u. loss for wood
13,200 B.t.u. loss for iron

60,944 Total B.t.u. loss

Unit Heater Requirement

Now we will have to find out what kind of a unit heater will be required. We know that the dry room temperature must be at 180 degrees Fahr., so we will have to determine at what temperature the air must leave the unit heater in order to provide enough heat to take care of our heat loss.

This is as follows:—

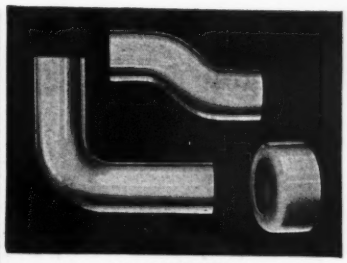
C. F. M. × 1.089 × Temp. diff. = B.t.u.

The 1.089 is a coefficient.

American "Porcel-Ell"

PORCELAIN ENAMELED

White or Colored



PAT. APPLIED FOR

The porcelain enameled bath tub has completely supplanted the old copper tub—

Now, you can obtain this practical, easy-to-clean porcelain in the Ell—ask your jobber for the "Porcel-Ell"

For the final touch of modern beauty in the bathroom, install "Porcel-Ell", white or colored. It makes cleaning easier, too.

Three coats of acid-resisting enamel are baked on Armco Ingot iron to make the "Porcel-Ell." It can be cut; and the exposed edges are protected by the rust resistance of Armco Ingot Iron; will not chip or crack except under a severe blow.

The cost is but little more than the ordinary ell.

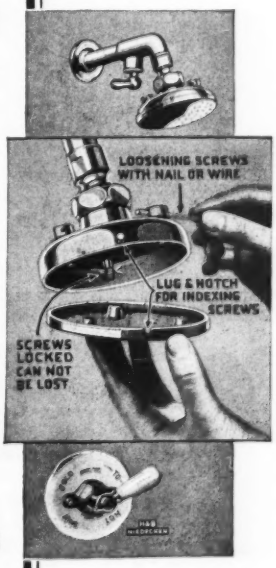
American Valve & Enameling Corp.
P. O. Box 18
Indianapolis :: Ind.

NIEDECKEN

Reasons Why

This patented NIEDECKEN Shower Head should be installed in every shower job you do. The price meets your requirements: plenty room for a handsome profit.

Impress upon your customers the greater facility of dissembling, sterilizing and reassembling the NIEDECKEN Shower Head, far superior to any other—as illustrated here. Act quickly: gain for yourself and customers by installing NIEDECKEN higher grade Shower service.



HOFFMANN & BILLINGS MFG. CO.
Milwaukee, Wisconsin

Write for fully descriptive Bulletin

SHOWER HEAD

Big
Plumbers'
Profits
OHIO Automatic Heaters are easy to sell . . . . because of the ever increasing demand. Write for our proposition explaining how you can make BIG money with our line.
The
OHIO
HEATER
COMPANY
Columbus, Ohio
We sell through the plumbing trade exclusively
Safety pilot control . . . . no extra cost
15 to 1000 gal. capacity
Several models to choose from
$50 . . and up
"No finer heater built"
OHIO
Automatic
WATER HEATER

C. F. M. = Cubic feet per minute, in this case we decided we needed 3,700.

Temp. diff. = the difference in temp. between the air leaving the heater and the room temp.

Then:—

$$3{,}700 \times 1.089 \times \text{Temp. diff.} = 60{,}944$$

or $$\frac{60{,}944}{3{,}700 \times 1.089} = 15 \text{ degrees approx.}$$

In other words our unit heater must be able to give us a delivery air temperature not less than 180 + 15 or 195 degrees Fahr.

You now have enough data so that you can go to any manufacturer's catalog and pick out the proper heater.

Summarizing we have:—10 lb. per sq. inch steam pressure, 3,700 c.f.m. air capacity, 195 degrees Fahr. Final temperature of air leaving with inlet air at 70 degrees Fahr.

That wasn't so difficult, was it?

In future issues we will try and give you similar problems which you can apply in your daily work.

It might be well to mention that the air distribution shown by the drawings is not the best obtainable but was the one which was specified by the customer. A better scheme would have been to bring the hot air in at the top and take the air out at the two corners and on the same end where the air was introduced as shown in Fig. 3. The piping diagram for the heater is illustrated in Fig. 4.

Education a Great Factor in the Enforcement of Plumbing Laws

A LETTER from John P. Beuth of Moberly, Mo., handles the subject of the enforcement of the provisions of a plumbing code from such a common-sense standpoint that it is well worth our serious attention. Here it is:

"We have just passed a plumbing ordinance in our town.

"I have noticed in many towns where they adopt an ordinance they soon drop it or have more or less trouble with its enforcement.

"I wonder whether this is not due to lack of educational work that should have been done. I think that when the ordinance is explained to the master and the workman, both will see it as a protection in the way of elevating their business above that of an ordinary tinker, this protection amply repaying them for helping to carry out the ordinance without being driven to it.

"With this thought in mind, I am wondering whether a chart could not be made showing the different connections and installations made according to our ordinance.

"It is my intention after obtaining such a chart, to call a meeting and give each plumbing concern a copy of the chart. I would endeavor to hold several of these meetings until the work shown by the chart was thoroughly understood.

"I believe this plan of education will do more for the successful operation of our plumbing ordinance

than any other plan of forcing compliance with it.

"I await your reply with interest."

Seldom have we received a letter that makes a stronger appeal to our desire to be helpful to the plumbing trade than this one does.

The tone of the letter and its wording lead us to believe that knowledge of plumbing even among the plumbing trade itself is not what it ought to be in Moberly. That being so, we agree fully with our correspondent that education is the one thing that will correct the situation.

In the case of Moberly, we believe it is of more consequence to educate the masters and journeymen in correct plumbing practice than to attempt the education of the public along this line.

It seems to us perfectly true that the standard of plumbing in any community depends almost entirely on the character of the local plumbing trade.

If Moberly's plumbing concerns are run by men of standing, who are anxious to see their community served by good plumbing, Mr. Beuth's plan ought to be a workable one.

This plan of bringing the different concerns together will be a wonderful thing for the plumbing business of Moberly if the plumbing trade of that town enters into the plan with the right thought about it.

This coming together will not meet with the success that such a plan deserves, unless the various concerns are willing to let by-gones be by-gones, or until each is ready to have respect for the other man's intentions. When these things come to pass, and jealousies and personalities are dropped, then the getting together of these men in the endeavor to master the rudiments of correct plumbing will achieve wonderful results for the plumbing of Moberly and incidentally for the profits of the plumbing contractors of that city.

Mr. Beuth's plan is not at all merely in the nature of a pleasant dream. We have seen many an instance where bitter competitors have come together in this manner, to the betterment of the plumbing trade involved, as well as the community in which they do business.

It is almost a certainty that the enforcement of a plumbing code cannot succeed unless the plumbing trade is willing and indeed anxious to give honest and earnest co-operation.

Mr. Beuth's suggestion of the use of a chart showing Moberly's plumbing practice could not be better. It will concentrate attention on those things that definitely concern the plumbing of that particular city.

What he has in mind is what the plumbing trade knows as a pilot drawing. As its title implies, a pilot drawing shows the plumbing practice of a given city, installed according to the plumbing laws of that city. Such a drawing, as now in general use, is about 22 inches by 28 inches, a size large enough to show clearly all practices that need to be illustrated.

Scores of cities and towns are now using pilot drawings to great advantage, and we believe a pilot drawing for Moberly would help greatly in the enforcement of the new plumbing code.

SPECIALISTS

. . . . 51 YEARS

THERE are some disadvantages in being a "specialist." And as "Pipe Cutter Specialists" we appreciate our disadvantage in not being able to offer the Trade a full line of tools for plumbers and gas fitters. However, it has been our policy to concentrate on this one endeavor to produce consistently year in and year out a complete line of Genuine Barnes Three Wheel Pipe Cutters, that will give the Trade *the best we have*—eminently satisfactory pipe cutters.

This policy has not been disappointing.

The fact that "Specialists" in any vocation are recognized as most dependable, no doubt has contributed to the continued demand for Genuine Barnes.

The Genuine Barnes comes in eight sizes to cut any pipe up to twelve inches. Carried by leading supply dealers everywhere.

The Barnes Tool Company, Inc.

Creators of the Genuine Three-Wheel Barnes

New Haven Conn.

RETAIL ADVERTISING SERVICE

These pages this week carry two single column newspaper ads, one two-column newspaper ad, the usual sales letter and two publicity items. Also included is the second of the "window-grams" with instructions for its use. The cuts for the single-column ads cost 35c each or $4.20 for twelve weeks' service. Cost of cut for two-column ad is 50c.

A Christmas Inspiration

Gifts from the Plumbing Store

WHAT more could a woman's heart desire? Gifts from the plumbing store—and the lasting gift of leisure. Picture the pride of contentment for the wife, sister or mother who receives these wise and always timely gifts. And remember that it is an ideal Christmas where everyone benefits by giving as well as receiving. Before you make a single purchase visit our showroom. Our displays are rich in suggestions—and you will find them an inspiration to your sense of beauty and your hope of comfort.

(In this space your Name, Telephone Number and Address)

NEWSPAPER AD No. 55

IS YOUR HOME A MUSEUM?

"There are a great many people that I can't understand," remarked Harry Brown, local plumbing and heating contractor.

"They seem willing enough to spend a great deal of money for expensive cars and for the sake of appearance. Yet, without regard for their own and for their family's comfort and convenience, they go along year after year with an entire museum of antiquated contraptions that they fondly classify as plumbing fixtures.

"But, as a contrast, there is still the other fellow. He drives a moderate priced car, and has steadily sought to render his home a more livable place for his family. He has freed life of the endless round of petty household worries."

SALES LETTER
No. 25
HARRY BROWN
PLUMBING & HEATING

Two Rivers, N. Y.,
December 14, 1929.

Mr. and Mrs. Edward Jones,
Two Rivers, N. Y.

Dear Mr. and Mrs. Jones:

Christmas is here—as you are doubtlessly being reminded from all sides. But we are reminding you again because we want to offer suggestions to help you better the general scheme of living.

The plumbing store is the abiding place for any number of splendid Christmas gifts. Consider this brief list: shower curtain, bathroom scale, cabinet covers for the radiators, a thermostatic temperature regulator, an automatic water heater, a swing spout for the kitchen sink, shower bath installation, electric refrigeration, automatic draft regulator for the heating plant, richly colored plumbing fixtures—why the list might grow interminably. And all are investments that never shrink, gifts of utility as well as beauty.

Few homes are ever complete to the point where some fixture of signal advantage cannot be added. Have you ever stopped to think of these various conveniences which would double your leisure, which would add immeasurably to the joy of living? Visit our showrooms.

Very truly yours,
HARRY BROWN

HERE are two newspaper publicity items — clip them and hand them to your local paper. They represent valuable sales help.

The Eternal Question

What to Buy for Christmas?

DID you ever hear of boilers and radiators as Christmas gifts? If you have not then let this be an inspiration to you. Buy a gift that gives solid comfort and contentment, and make your home hospitable, warm and welcoming. Install a boiler and radiator heating system and warm your home with well-balanced, clean heat. And at the same time convert the basement into a cheerful, usable place. Radiator heat is healthful heat. It combines efficiency of operation, economy and uninterrupted dependability.

(In this space your Name, Telephone Number and Address)

NEWSPAPER AD No. 56

ARE YOU TAKING CHANCES WITH WINTER ILLNESS?

Asked for an explanation of his worried expression the other day, Harry Brown, local plumbing and heating contractor, replied that he could not free his mind of a genuine concern for those families in the community whose homes he knew to be improperly and unhealthfully heated.

"I am probably in a better position," he said, "than anyone except the doctor to realize just how much the dangers of winter colds and flu are increased by inadequate heating equipment.

"Balanced radiator heat permits opening of windows to secure proper ventilation, thus combating the conditions that contribute to lower the vitality and make people so much more susceptible to winter infections."

Practical Advertising Helps

Make Her Happy With A Gift *for* Health *and* Comfort

See that your home is equipped to furnish clean, healthful warmth, the kind of warmth that is supplied by boiler and radiator heating systems. It is poor economy to use old-fashioned equipment. But a dependable, economically operating heating plant is an assurance of tremendous magnitude. What more splendid gift, then, can be conceived?

Let us suggest a gift that affects a vital phase of the important business of living. Enjoy 70 degrees comfort in zero weather by using scientific heat. You can relieve your mind and save your time by consulting us now. We will be glad to give your heating problems a complete and careful study.

(In this space your Name, Telephone Number and Address)

NEWSPAPER AD No. 57

For those of our subscribers who want to use two-column or larger ads, the illustration cut is available at 50c. Write us and tell us if you want the large one. We'll send it immediately.

ADVERTISING should be considered as a campaign —each piece of copy ought to fit into a progressive campaign. These pages, for instance, will help build brief efforts proper to the season just opening. Each piece of copy ought to be strengthened by others—as the sales letter helps the newspaper ad, and the publicity items help both.

How to handle the window card shown at right

A Window Display Suggestion—No. 9

Take about twenty rubber fittings from each line of rubber specialties—such as rubber stoppers, sink gaskets, slip joint washers, etc.—and arrange each series of items in oblique, pyramiding lines across the extra space in your window. Place the card at the converging point of the lines.

You can have the copy for the card set up by your local printer, or you can have your local sign writer or show card writer letter it by hand for you. Whichever course you follow, be sure that your card is of first-class appearance. Don't try to do the thing cheaply. Pay a dollar or two so that your card will be as good looking as in any other store window on the street.

Large Troubles

May Be Caused By Neglecting These Small Fittings

One of these items may be needed to stop water waste in your home.

They Are Highly Important

The Proposed Plumbing Code *for the State of Kansas*

By
R. M. STARBUCK, JR.

IT should be most gratifying to the friends of good plumbing, and especially to the plumbing trade, to note how one state after another is falling into line, in the endeavor to enact a code of laws whereby the state may direct plumbing operations along safe and correct lines.

The enactment of such a code is a matter involving state legislation, and it is not every state legislature that accepts the proposition the first time it is offered to them. This has been the case much more frequently than has the opposite action, in which enactment was easily and quickly obtained. And this is not strange, for with so much new legislation being offered in every state, it certainly does behoove those who are responsible for such enactments to acquaint themselves with the need that exists, and with the character of the remedy that is being offered.

And so we see recent attempts for the enactment of state plumbing codes in Kansas, North Carolina, New Jersey, Texas, and very likely other states, meeting with failure in their first introduction.

This result should only stimulate further efforts, rather than discourage them. We have seen in a recent issue of DOMESTIC ENGINEERING that New Jersey is again preparing to introduce into the next session of its legislature its proposed state code, and now we learn that similar effort is planned for Kansas.

Years ago there was practically nothing on which to base a state plumbing code. One reason for this situation was that plumbing practice was so variable and unstable. In recent years however we have seen the practice of plumbing, the science of plumbing in other words, gradually becoming stabilized.

Development of Plumbing Codes

In our own personal analysis of this development, we see three principal models appearing in recent years.

First, the states of Ohio and Wisconsin enacted most excellent laws for the government of plumbing practice within those states. We feel that these two state codes have had a very strong influence for the betterment of plumbing practice in all parts of the country. As we stated in our recent article on the proposed New Jersey state code, it is based on the Wisconsin state code, and for that reason is most dependable.

More recently the Hoover code, so-called, has been enacted, and this has become a model for a great many states and municipalities, including the three other states mentioned above,—Kansas, North Carolina and Texas.

Not only are these states endeavoring to line up behind the Hoover code, but we have already seen the states of Maine, New York, Florida, Indiana and Iowa and very likely others enacting the Hoover code either in full or in modified form.

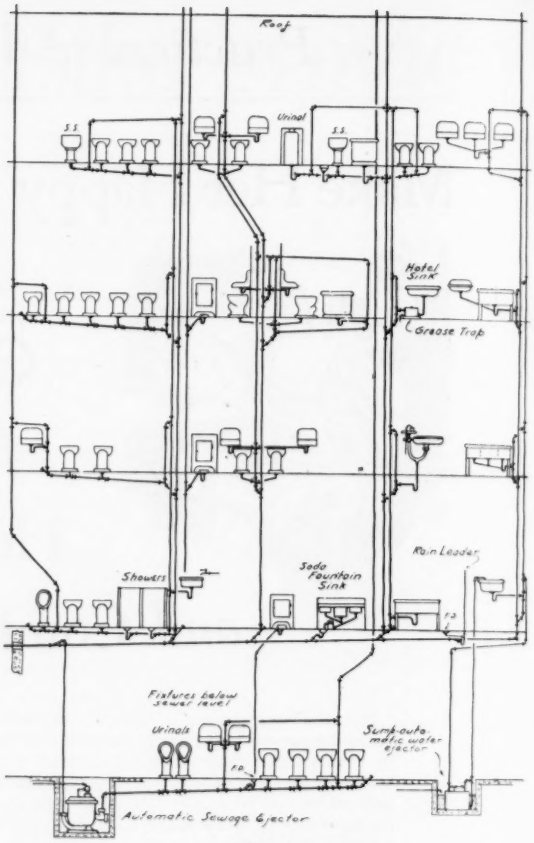


Fig. 1

For the benefit of those who may not be fully informed, we want to say that the organizing and engineering genius of Herbert Hoover has extended even into the field of our own trade, and actually furnished the impetus and guidance which resulted in an extended investigation into the subject of plumbing practice under the direction of the Department of Commerce and the Government Bureau of Standards.

Hoover Investigation Scientific

The big point of the Hoover investigation is that it was made scientifically, in an unbiased way, and with simplification as its fundamental aim and object, although the latter has not in any way been at the expense of efficiency.

Thus it will be clear that, according to our best judgment, a state plumbing code based on the Hoover code, has the best foundation that present knowledge of plumbing practice and theory can afford. This is not to say that the Hoover code is a perfect code, and that as time goes on it will not undoubtedly be improved, but as a clear, safe statement of minimum requirements, it is entirely worthy of confidence.

The Kansas Code

A letter recently received from Harry L. Stevens, Hutchinson, Kans., chairman of the Educational, Code

Plumbers favor the smart modern lines of T/N

Real estate developments offer big profits to you . . .

TEN years ago, if a home was comfortable and substantial, it got by. But not today! Now people demand the same style and smartness in their homes that they have in their clothes . . their cars . . their radios.

That's why so many builders are installing the T/N in all their houses. Its modern, distinctive, unobtrusive appearance helps make the sale. And when people find out that T/N is so quiet, . . . non-overflowing . . . quick-flushing, they like it all the more. No wonder that T/N is such a business-getter for the plumber!

T/N is easily handled . . . easily installed. Comes packed in one crate. There's no clumsy wall tank . . . it can be placed under a window or in a corner. Only two connections to make. Write now for the name of your nearest jobber.

ONE PIECE WATER CLOSET SILENT NON-OVERFLOW
Patented, Pat. Pend.

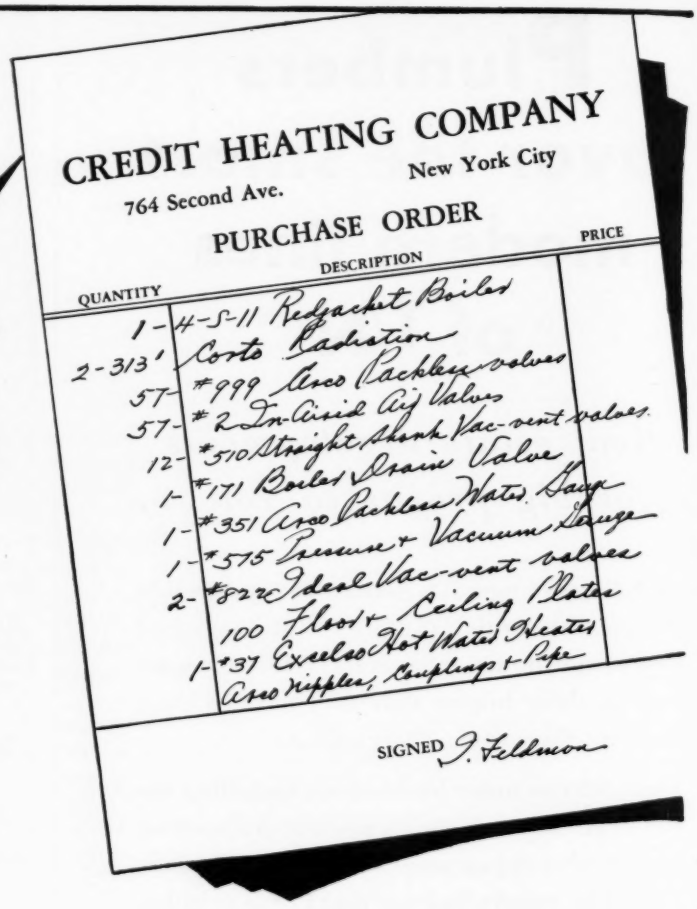
W. A. CASE & SON MFG. CO.
Established 1853
Dept. 512, 220 Delaware Avenue, Buffalo, N. Y.

A T/N in each of these Washington, D. C., homes.
Plumbing Contractor, Charles B. Broome.
Jobber, E. G. Schafer

T/N

ONE PIECE WATER CLOSET

This kind of order makes money for me!

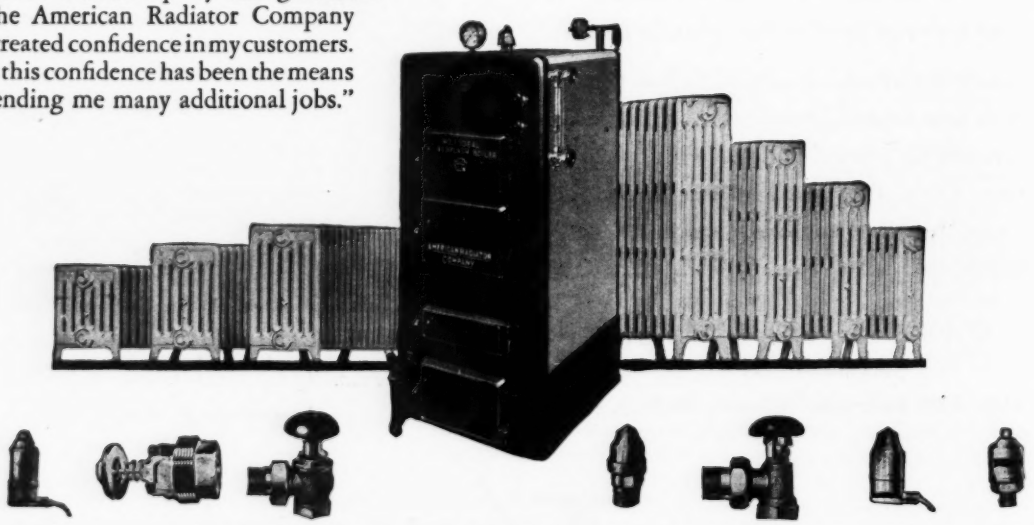

CREDIT HEATING COMPANY
764 Second Ave. New York City
PURCHASE ORDER

QUANTITY	DESCRIPTION	PRICE
1 -	4-S-11 Redjacket Boiler	
2-313'	Corto Radiation	
57-	#999 Arco Packless valves	
57-	#2 In-Aired Air Valves	
12-	#510 Straight Shank Vac-vent valves	
1-	#171 Boiler Drain Valve	
1-	#351 Arco Packless Water Gage	
1-	#575 Pressure + Vacuum Gauge	
2-	#822C Ideal Vac-vent valves	
100	Floor + Ceiling Plates	
1-	#37 Excelso Hot Water Heater	
	Arco Nipples, Couplings + Pipe	

SIGNED J. Feldmon

THE below is the statement of a contractor who has learned the value of installing "all-American" jobs, and the purchase order shown above is for one of his typical installations.

"Every time I install an 'all-American' job, I know that I am putting extra money in my pocket. Not only do I save the expense of having to make return trips to regulate the job but the assurance that I am able to give my customers which is backed up by the guarantee of the American Radiator Company has created confidence in my customers. And this confidence has been the means of sending me many additional jobs."



AMERICAN RADIATOR COMPANY

40 WEST 40TH STREET, NEW YORK

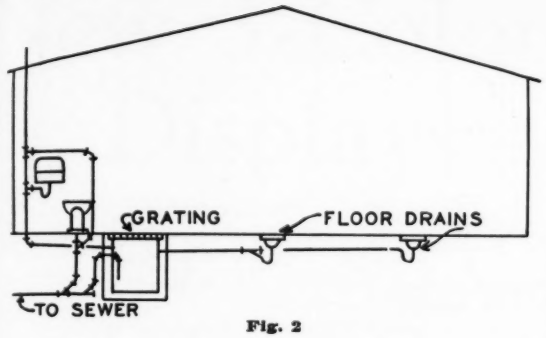


Fig. 2

and Legislature Committee of the Kansas State Association, gives a brief account of the efforts already made and those contemplated in behalf of the Kansas state code, and in part is as follows:

"We are enclosing the first draft of the proposed Kansas code. This code was taken very largely from the Hoover code; was presented to the State Association at the convention in Topeka, Kansas, in 1928. The Committee conferred with the health and educational authorities, and decided to present a bill appointing a sanitary board, composed of the dean of the State Engineering School, Secretary of the State Board of Health, and one master plumber appointed by the governor, with full authority to draft and enforce such plumbing regulations as deemed beneficial to the State. The two members of the board who would have been members by virtue of their office, were favorable to the enclosed code generally. This code was very ably presented at both bodies of the legislature, but failed. We hope to present it again in 1930, with the additional backing of the Women's Club, State League of Municipalities, State Educational Institutions, State Board of Health and the Izaak Walton League. Incidentally, officials of the Izaak Walton League are extremely anxious to assist us on this measure, believing that it will aid them in their fight against pollution of streams."

The draft of the code presented to the last legislature, which was rejected, was based on the original form of the Hoover code, and since that time, in fact within the last few months, the revised Hoover code has appeared. The original, as its title implied, presented minimum requirements for "dwellings and similar buildings," whereas more recently the scope of this code has been extended to cover all buildings.

We make this statement thinking that perhaps it may

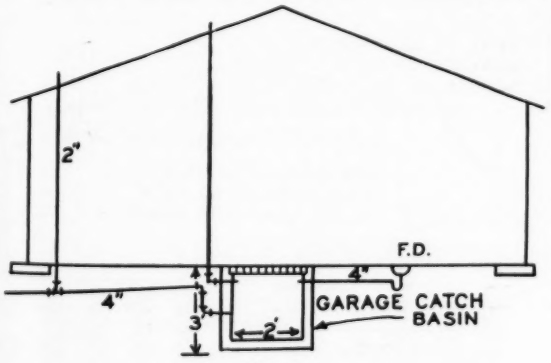


Fig. 3

The KAINER
PRESSURE GOVERNOR
for Hot Water Heating Systems
More and more plumbing and heating contractors and engineers are recommending and installing the KAINER Pressure Governor in place of expansion tanks and fittings on their hot water layouts.
The overwhelming nationwide acceptance of the KAINER during the past few years affords ample proof of the sound engineering principles that characterize the design and construction of this dependable Governor.
The KAINER Governor reduces the cost of a hot water lay out, simplifies installations, makes a better job, saves your time and your customer's money, increases your profits and builds good will.
Write today for full information
KAINER & COMPANY
CHICAGO
761-771 MATHER STREET
Manufacturers
REDUCING VALVE
RELIEF VALVE
SUPPLY
STRAINER
DISCHARGE

O-B Brass Valves
are made in the following styles

Flexitite Disc Gate Valves
125 lb. Standard, Non-Rising Stem, No. 20
125 lb. Standard Rising Stem, No. 21
100 lb. Light Standard, Nc. 25

Radiator Valves
Flexitite Disc Gate, No. 50
Steam, No. 30
Hot Water, No. 40
Union Elbows, No. 45

Globe, Angle and Check Valves—Renewable

	Brass Disc	O-B Disc
150 lb. Standard		No. 10
125 lb. Standard	No. 1	No. 15
Competition	No. 2	No. 3
Lock and Shield	No. 5	

Flexitite Disc Gate Valve Patented

Ohio Brass Co.
742V Mansfield, Ohio

FLAGG UNIONS

Many of our friends tried a sample order and now order them by the barrel, because their trade liked them. We feel sure you will not be disappointed if you follow their example, and order a few FLAGG UNIONS.

FF FF

STANLEY G. FLAGG & CO., Inc.
1421 Chestnut St.
Philadelphia, Pa.

WISECO

TUBULAR BRASS GOODS
now regularly furnished with
NICKEL SILVER
BEAD CHAIN

Make Wiseco your standard and benefit by forward looking manufacture

J. B. WISE, Inc., Watertown, N. Y.

Dole

Automatic All Metal *Non-Adjustable Thermostatic*

SYPHON AIR VALVES

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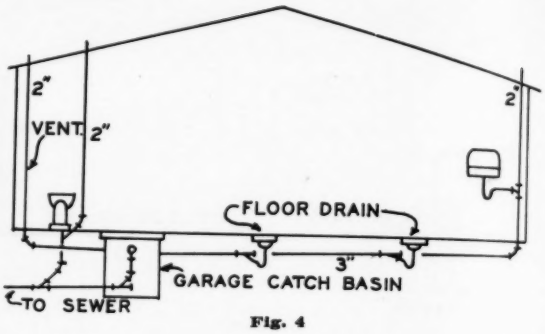

Fig. 4

be deemed wise to incorporate some of the changes in the proposed Kansas code.

Thinking that it will be helpful to have before us a picture of what the Hoover code actually represents, we have worked out an elevation which graphically presents the various requirements named in the Hoover code, and this we show in Fig. 1. Fig. 1, then, shows the plumbing requirements under the proposed Kansas state code.

Chapters of Code

This code is made up of fourteen separate articles or chapters, on the following subjects:

1.—Definition of terms.
2.—General regulations.
3.—Quality and weights of materials.
4.—Joints and connections.
5.—Traps and cleanouts.
6.—Water supply and distribution.
7.—Plumbing fixtures.
8.—Ventilation of rooms and fixtures.
9.—Soil, waste and vent pipes.
10.—House drains and sewers.
11.—Storm water drains.
12.—Refrigerator, safe, and special wastes.
13.—Maintenance.
14.—Inspections and tests.

We have always felt that this is a very logical, concise distribution of the general subject of plumbing. About the only criticism we have to offer concerns the first article, "Definition of terms." As far as they go, the definitions are alright, but there are many definitions lacking that might add to the value of this part of the code.

A considerable number of municipal plumbing codes

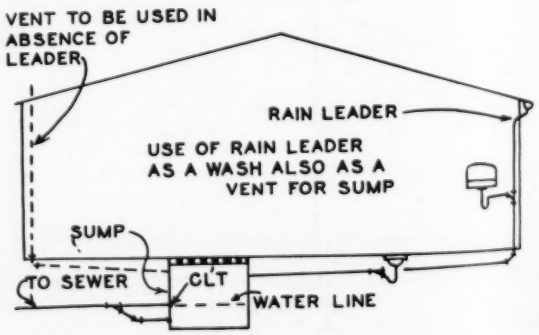
VENT TO BE USED IN ABSENCE OF LEADER
RAIN LEADER
USE OF RAIN LEADER AS A WASH ALSO AS A VENT FOR SUMP
SUMP
TO SEWER
CLT
WATER LINE

Fig. 5

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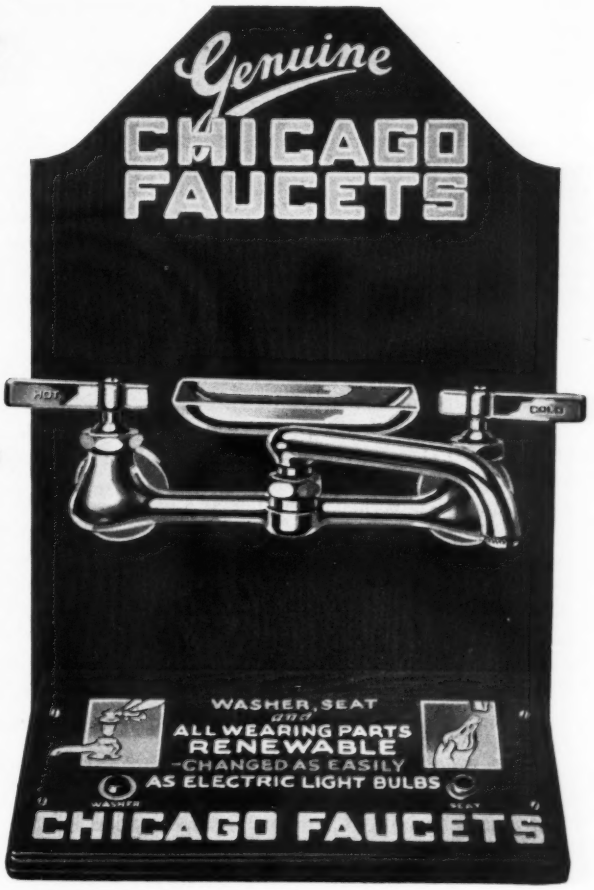

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are now well supplied with definitions of important general plumbing terms.

We think the Kansas code could be improved by further study of this first article.

We have heard it stated that often in court cases, the decision has hinged on some definition, and in the absence of such definition from the code, the meaning has been interpreted according to the dictionary meaning. This situation has in some cases worked an injustice. The point we make is that it might be well to go outside the Hoover code in making up Article 1 as efficiently as we feel it should be made.

Inconsistency Not Explained

In Article 3 under section 29, we note that the Kansas code allows the use of standard cast iron pipe in one-story buildings which do not exceed 25 ft. in height, but calls for extra heavy cast iron pipe in all other installations.

We do not know just what the arguments are back of this distinction. Our own view is that if it is considered necessary to use extra heavy pipe in the one case it would be necessary in the other. The general practice of the country at the present time calls for extra heavy cast iron pipe, making no such distinction as above mentioned.

The first four chapters of the Kansas code vary from the Hoover requirements very little, except in the preceding matter.

In Art. 5, Sec. 56, the new Hoover code includes a table of sizes of traps and branches, which in our opinion it would be well to add to the same section in the Kansas code. This table is the following:

Kind of fixture	Size (in inches), trap and branch	Kind of fixture	Size (in inches), trap and branch
Bathtubs[1]	1½	Sinks, hotel or public	2
Bath, shower, stall[1]	2	Sinks, large hotel or public	2
Bath, sits	1½	Sinks, small, pantry or bar	1¼
Bath, foot	1½	Sinks, dishwasher	1½
		Sinks, slop, with trap combined	3
Bidets	1½	Sinks, slop sink, ordinary[1]	2
Combination fixture	1½	Urinals, lip	1½
Drinking fountains	1¼	Urinals, troughs	2
Fountain cuspidors	1¼	Urinals, pedestal	3
		Urinals, stall	2
Floor drains	2	Washbasin[1]	1¼
Laundry trays	1½	Water-closet	3
Sinks, kitchen, residence	1½		

[1]The present tendency is toward an increase in the size of trap and waste pipe for this fixture, in order to reduce the time required for emptying it.

Under Sec. 58 of the same article, both codes allow three lavatories to be served by one trap. We appreciate the fact that this is more or less general practice, but nevertheless it has never seemed to us the best practice. It may save a little in the expense of installation, but more satisfactory results come from separately trapping each lavatory. When three fixtures are served by one trap, partial closure of the trap will make the waste sluggish in passing out of all three fixtures. Moreover, there is often quite a length of exposed waste pipe in such connections, and this will throw out impure odors into the toilet room to a greater extent than when each fixture has its own trap.

Garage Regulations Important

The section which deals with garage plumbing requirements is an improvement over the same section in the Hoover code, and is the following:

"Sec. 67. Sand Traps.—All stables, barns, carriage houses, where automobiles or other vehicles are washed, having a wash rack which is connected with the sewer, shall be provided with an adequate and sufficient sand trap, which shall meet the approval of the plumbing inspector, and no sand, dirt, grease, oil or other refuse matter shall be allowed to accumulate in said sand trap to a greater depth than six (6) inches below the out-take sewer, and be readily accessible for cleaning."

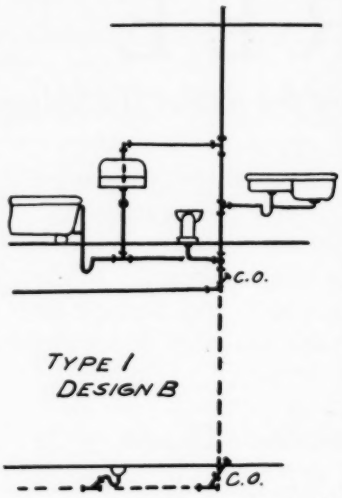


Fig. 6

As far as we can see, this section is the only section in the Kansas code dealing with garages. It does not go into the subject sufficiently. The proper handling of garage drainage is a most important matter under the present tremendous use of automobiles, and this is particularly true of public garages, used either for storing, repairing or washing of automobiles.

As we look at it, Sec. 67 in its present form, takes care of only one phase of the subject, the holding back from the sewer of sand and other refuse. How about gasoline and oil? These ought never to be carried into the sewer, and with proper drainage precautions in garages, the danger may be overcome.

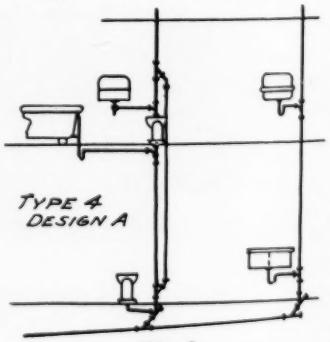
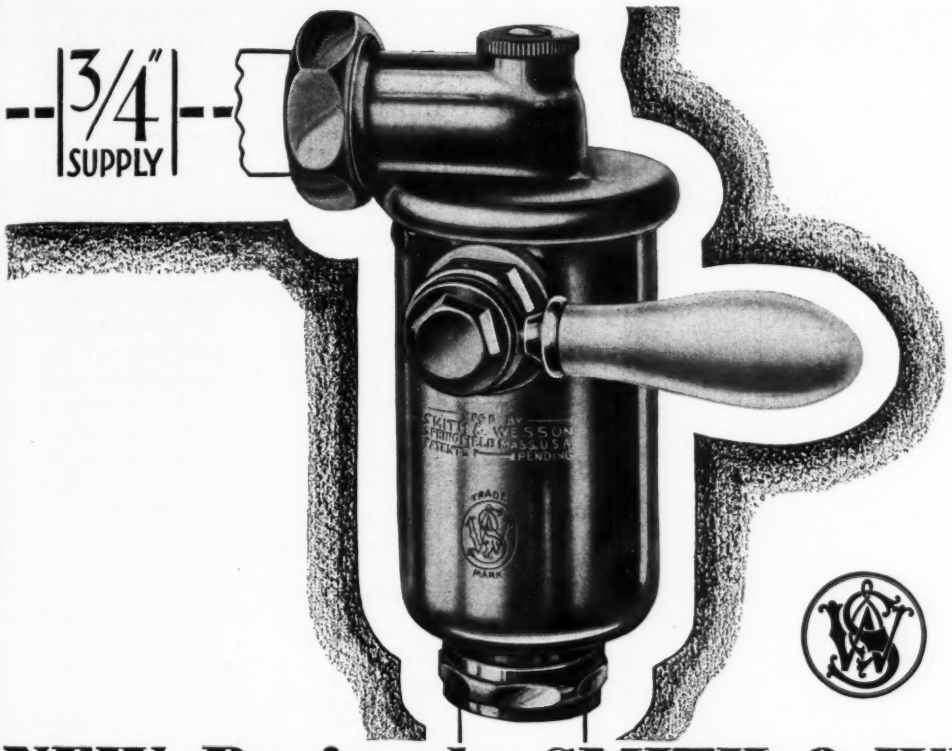


Fig. 7

Most plumbing codes pay special attention to this subject, and in our estimation, a good statement should be added to Sec. 67, covering this subject.

There are innumerable different layouts for properly handling garage drainage, and in Figs. 2, 3, 4 and 5, we show some of them. One of the chief points in this work is to provide ventilation for the catch basin, so that whenever gasoline discharges into it, the fumes may be carried off. This is accomplished by using not less than a 2-inch vent pipe, and carrying it through the roof.

We want to make special reference to a paragraph



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in Sec. 73 of the Kansas code, which has to do with the subject of cross connections as relating to the possibility of contaminating the water supply from water closets and which is as follows:

Cross Connection Provisions

"No water-closet or urinal bowl shall be supplied directly from a water-supply system through a flushometer or other valve unless such valve is set above the water closet or urinal in a manner such as to prevent any possibility of polluting the water supply."

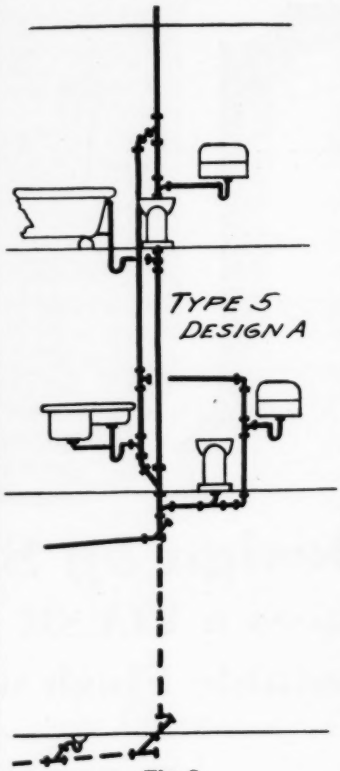

Fig. 8

This provides protection against cross-connecting the drainage and supply systems and thereby polluting the drinking water. This may seem far-fetched to many, but as a statement of fact, easily proved, these same cross connections have in the past been responsible for much loss of life especially in hospitals.

The Hoover code has an additional paragraph on this subject, which is omitted from the Kansas draft, and which we think should be included. It is the following:

"No plumbing fixture, device, or construction shall be installed which will provide a cross connection between a distributing system of water for drinking and domestic purposes and a drainage system, soil, or waste pipe so as to permit or make possible the back flow of sewage or waste into the water-supply system."

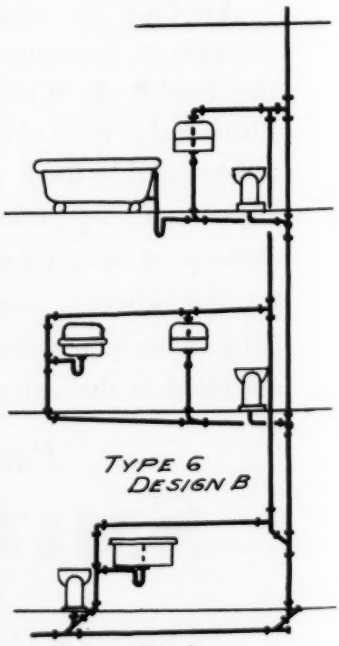

Fig. 9

The first paragraph handles the danger only as presented by cross connections involving water closets and urinals. There are many other opportunities for such pollution, through wrong

cellar drainer connections, connections from wastes of automatic refrigerating systems, etc., and the second paragraph, as we take it, is for the purpose of guarding against danger from these sources.

Sec. 79 presents an improvement over the Hoover requirements, in the addition of the last sentence, as follows:

"Sec. 79. Pumps and Hydrants.—All pumps and hydrants shall be protected from surface water and contamination. No well shall be located within 300 ft. of any sewage disposal, unless sewage disposal has been subjected to proper septic tanks action as approved by the proper authorities."

One of the improvements that is seen in the new Hoover code is that since the original was published further investigation has proved that many more fixture units may be accommodated by a stack on which Y's or combination Y and bend fittings are used, than by a stack using sanitary tees.

Diameter (inches)	With "sanitary T" inlets		With all 45° Y or "combination Y and one-eighth bend" inlets		Maximum length, including extension as vent
	In one branch interval[1]	On any one stack	In one branch interval[1]	On any one stack	
					Feet
1¼	1	1	1	1	50
1½	2	8	4	12	65
2	9	16	15	36	85
3	24	48	45	72	212
4	144	256	240	384	300
5	324	680	540	1,020	390
6	672	1,380	1,122	2,070	510
8	2,088	3,600	3,480	5,400	750

[1]The term "branch interval" shall be interpreted to mean a vertical length of stack, not less than 8 feet, within which a branch or branches are connected, and the total fixture units on all branches connected to a stack within any 8-foot length shall not exceed the maximum permitted by the table in one "branch interval."

While the present Sec. 92 in the Kansas code provides perfectly safe practice, we feel that the replacing table has taken a step forward. This table is as follows:

Maximum Fixture Units on One Stack

A very good addition has been made to Sec. 92 in the Kansas code by the following provision:

"No vertical soil or waste stack shall extend over 30 ft. without an offset to retard the velocity of the discharge." This is important in very high buildings.

In the present draft of the Kansas code, the tables of main vent pipe sizes under Sec. 103 are subject to the following qualifying statement:

"Note: The capacities and vent stack requirements for 4-, 5-, 6- and 8-inch soil stacks are extrapolated from data obtained for 2- and 3-inch stacks with liberal added factors of safety to provide for all necessary elbows or changes in direction in the vent stack. They are believed to represent safe installations and closer approximations to actual requirements than any tables now available."

The meaning of this is that vent sizes larger than 3-inch were arrived at in the original Hoover code by theoretical computations.

In the new code, however, the 4-, 5-, 6- and 8-inch

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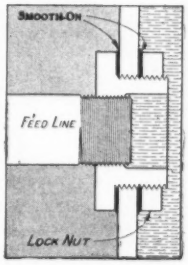
AT TAPPED CONNECTIONS



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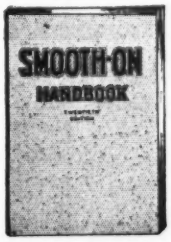

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sizes have been obtained on the basis of scientific experiments, and this has produced even more reliable results than first obtained. The new table of sizes is as follows:

Maximum Permissible Length of Vents (in Feet) for Soil and Waste Stacks

Diameters of soil or waste stack (inches)	Number of fixture units	Diameter of vent (in inches)									
		1¼	1½	2	2½	3	4	5	6	8	10
1¼	1	45									
1½	Up to 8	35	60								
2	Up to 18	30	50	90							
2½	Up to 36	25	45	75	105						
3	12		34	120	180	212					
3	18		18	70	180	212					
3	24		12	50	130	212					
3	36		8	35	93	212					
3	48		7	32	80	212					
3	72		6	25	65	212					
4	24			25	110	200	300	340			
4	48			16	65	115	300	340			
4	96			12	45	84	300	340			
4	144			9	36	72	300	340			
4	192			8	30	64	282	340			
4	264			7	20	56	245	340			
4	384			5	18	47	206	340			
5	72				40	65	250	390	440		
5	144				30	47	180	390	440		
5	288				20	32	124	390	440		
5	432				16	24	94	320	440		
5	720				10	16	70	225	440		
5	1,020				8	13	58	180	440		
6	144					27	108	340	510		
6	288					15	70	220	510	630	
6	576					10	43	150	425	630	
6	864					7	33	125	320	630	
6	1,296					6	25	92	240	630	
6	2,070					4	21	75	186	630	
8	320						42	144	400	750	900
8	640						30	86	260	750	900
8	960						22	70	190	750	900
8	1,600						16	40	120	525	900
8	2,500						12	28	90	370	900
8	4,160						7	22	62	252	840
8	5,400						5	17	52	212	705

Circuit and Loop Venting

The subject of circuit and loop vents is handled nicely in the Kansas code, as follows:

"Sec. 106. Circuit and Loop Vents.—A circuit or loop vent will be permitted as follows: A branch soil or waste pipe to which two and not more than eight water closets, pedestal urinals, trap standard slop sinks, or shower stalls are connected in the series may be vented by a circuit or loop vent, which shall be taken off in front of the last fixture connection. Where fixtures discharge above such branch, each branch shall be provided with a relief vent one-half the diameter of the soil or waste stack, taken off in front of the first fixture connection."

The relief vent mentioned in Sec. 106 is clearly illustrated in Fig. 1. In our opinion this is a necessary feature of this type of venting, but called for in comparatively few plumbing codes.

Without question much added value might easily be given this section if the proper method of installing the branch fittings on circuit and loop vented lines were

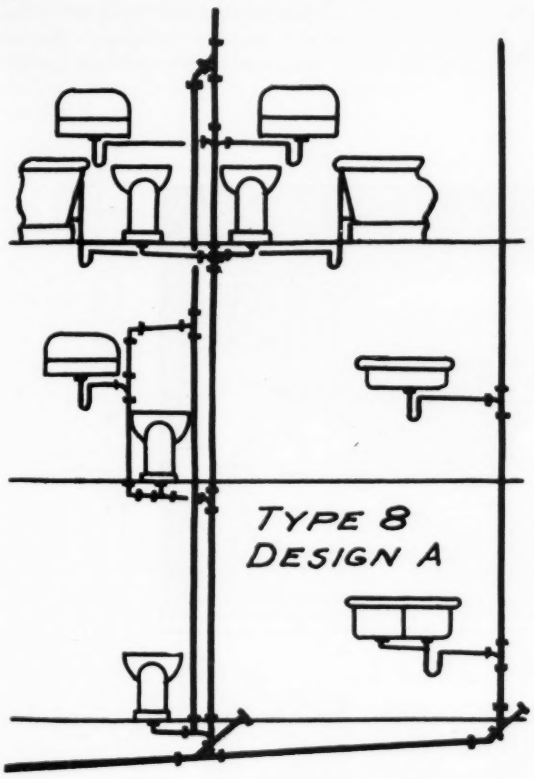


Fig. 10

required and specified as a part of the code.

As we look at it, the only correct method of installing the fittings into which the fixtures on such a line discharge, is to lay them flat, with the branch pointing horizontally rather than vertically as is the common practice. When waste enters the flat-laid fitting it does not form a curtain of water across the waste entrance and thereby obstruct the free flow of air through the horizontal soil line, on which the success of this style of venting depends. The Ohio state code is one of very few codes calling for this practice, and yet it is unquestionably the most efficient method.

In Sec. 106 only fixtures having floor outlets are considered as subject to the benefits of circuit and loop venting. Batteries of sinks, lavatories, etc., are vented in this same manner also.

In view of the fact that radical changes have been made in the tables shown in Sec. 115, and a new table added to Sec. 116, it would be well to consider them in a new draft.

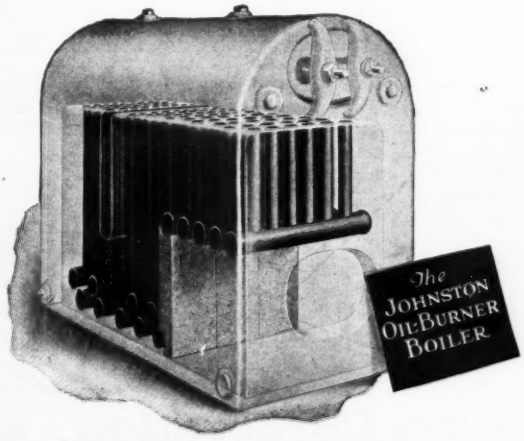
In calling repeated attention to changes shown in the new Hoover code, we do not intend to imply that use of the earlier data would be wrong, but in view of increased knowledge of the subjects treated, it would seem natural to put a higher value on the later results.

State Plumbing Is Only a Minimum Demand

It should be understood that any state plumbing code should be looked upon as a minimum demand. In other words, there should never be any hesitancy in exceeding the demands of such a code.

Article 12 might be improved if thought advisable, by

Four Heating Seasons Without a Single Complaint



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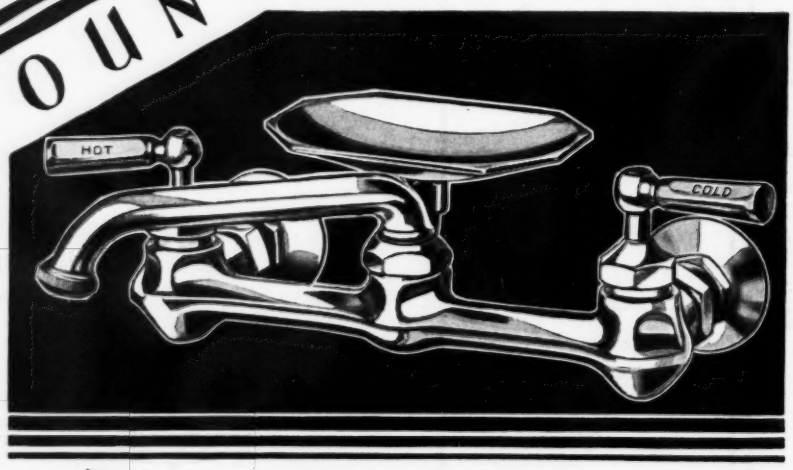

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adding requirements for connecting soda fountain sinks and for condensing tanks for steam heating systems.

More and more the requirement that all gas heaters,

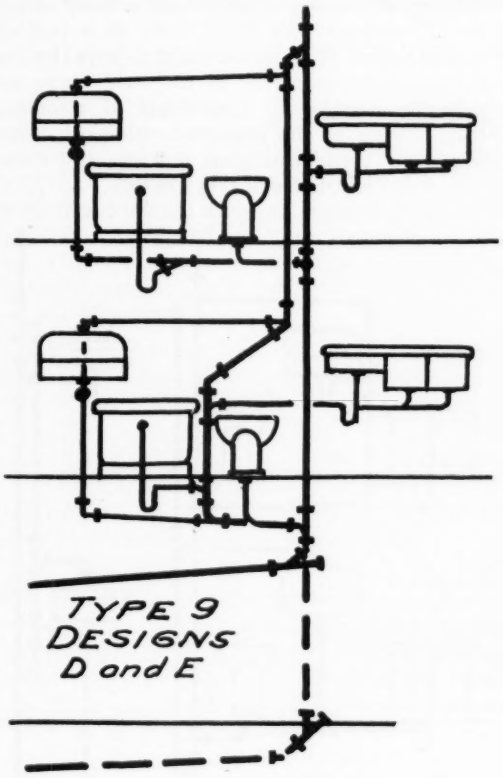

Fig. 11

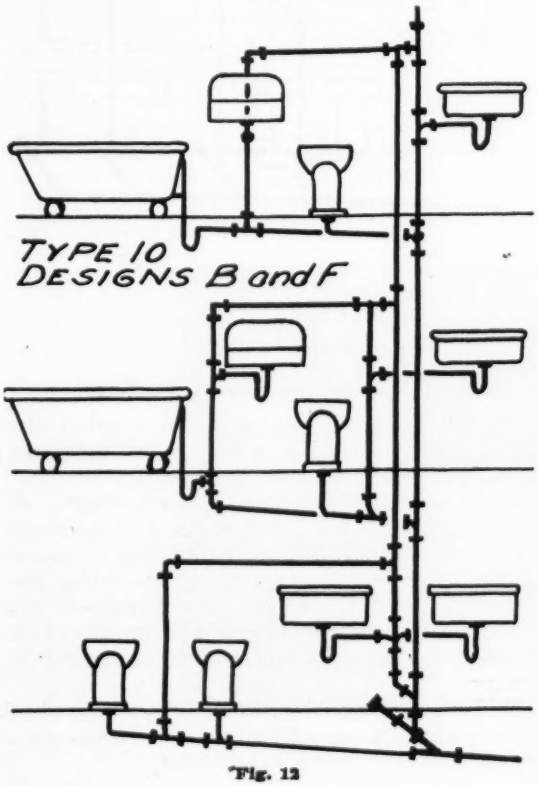

Fig. 12

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Haydn Myer, 2224 Cemar Bldg. Birmingham, Ala.
M. M. Rivard, 601 Gumbel Bldg., Kansas City, Mo.
Bookhout & Law, 331 Madison Ave., N. Y. City, N. Y.
Vassay-Gilbert Co., 2401 Chestnut St., Philadelphia, Pa.
C. U. Martin, Rialto Bldg., San Francisco, Calif.
B. J. Mulcahy, 210 So. 10th St., Minneapolis, Minn.
John A. Lungstrum, 9 Keely Bldg. Denver, Colo.

Also manufacturers of "Unitem" Submerged Water Heaters

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Jenkins Mfg. Co.
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Easy-Cutting Die Stocks

Square-End Pipe Cutters and Power Drives

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THE BORDEN COMPANY, 510 DANA AVE., WARREN, OHIO

PIPE-INSTALLATIONS
LARGE AND SMALL
LEAK FREE

are being made with Airco-Davis-Bournonville Welding and Cutting Outfits, easily taken to any point on the job.

AIR REDUCTION SALES COMPANY

Manufacturers and distributors of Airco Oxygen, Airco Acetylene, Airco-National Carbide
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Baltimore, Bettendorf, Ia., Birmingham, Boston, Buffalo, Charlotte, N. C., Chicago, Cleveland, Dayton, Detroit, Emeryville, Calif., Jersey City, Los Angeles, Louisville, Ky., Milwaukee, Minneapolis, Oklahoma City, Philadelphia, Pittsburgh, Richmond, Seattle, St. Louis, Wheeling

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Home Office: 342 Madison Ave., New York City, N. Y.
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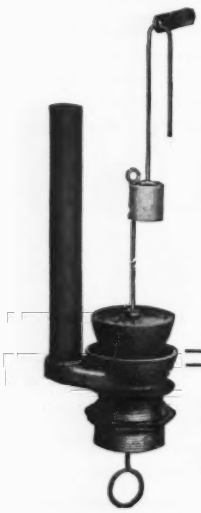
Take the time to investigate!

We've made some pretty strong claims for the performance of the HAAS Rely-A-Ball. We wish you'd take the time to check up on us. Get one from your jobber, or, examine one at your jobber's.



See how quickly and simply it's assembled—not a chance to go wrong—and then hang it up in the tank like you'd hang your coat on a hook.

Take the time to investigate Haas Rely-A-Ball. Do it today.

The Philip Haas Co., Inc.
Dayton :: :: Ohio

WATTS

"TRIPLE" DIAPHRAGM RELIEF VALVE

TYPE 29

To be used wherever protection is needed against excessive pressure, temperatures or both. It also guards against vacuum. The Type 29 is equipped with "Triple" control.

Approved by the Underwriters' Laboratories.

Send for particulars

WATTS REGULATOR CO.
LAWRENCE, MASS.

John G. Kelly, Inc., Sales Associates for the United States and Canada, 210 E. 45th St., New York, N. Y.
Johnnie Moore, 1020 Lawrence Ave., Chicago, Ill., Chicago Representative.

ranges, etc., shall be provided with fume pipes connected to chimney flue, is being given a place in plumbing codes, although not strictly a measure of sanitary nature.

Although the Hoover code did not actually define any of its 153 sections with illustrations, as a part of the extensive report of the experimental work leading up to the requirements named in the code, there were a considerable number of illustrations of recommended practice. Some of the state and municipal codes are making use of such illustrations, as a means of encouraging the simplified methods they embody.

One of the features on which these methods are based

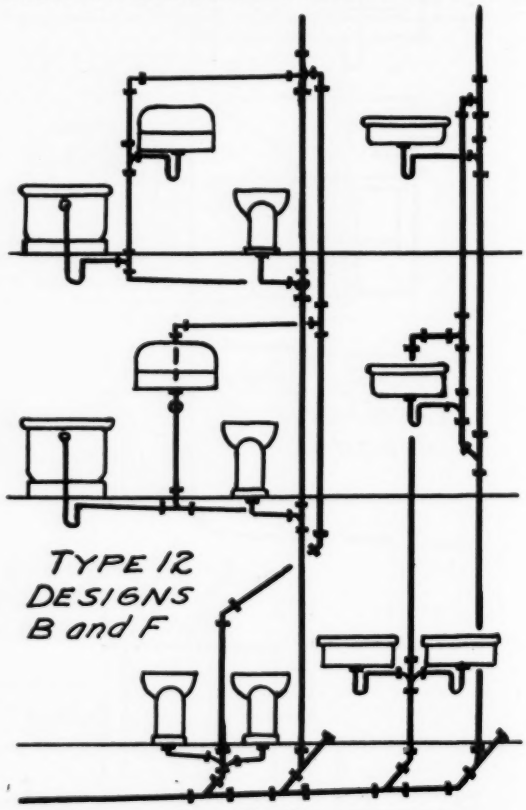


Fig. 13

is the use of the modern water closet fittings with side inlets for other fixtures. These are alluded to in the Hoover code as "Crowfoot" fittings, and are obtainable in almost infinite variety.

Use of Illustrations Should Be Encouraged

By way of encouraging the use of a variety of such illustrations in connection with plumbing codes, we are showing a few of them in Figs. 6 to 13.

More and more, plumbing codes are adopting simple illustrations as a most excellent means of interpretation of the terms of the plumbing code. Also, in connection with plumbing codes, pilot drawings are coming into extensive and most helpful use. Fig. 1 might be called a pilot drawing of the Kansas code, inasmuch as in it are incorporated the principal requirements named in the code.

It is well to remember that laws governing plumbing or any other practice are useless unless careful provision is made for their proper enforcement.

SUPPLY NEWS

AMONG MANUFACTURERS, WHOLESALERS AND SALESMEN

Organize Wholesale House in Memphis

L. W. Wilkins and B. J. Steiner, formerly with R. T. Clarkson Co., Memphis, Tenn., have organized a new wholesale company, known as the Memphis Plumbing and Heating Supply Co., with headquarters at 320 Piomingo street, Memphis.

◆

American Radiator Co. to Open Branch in Macon, Ga.

The American Radiator and Standard Sanitary Corp. announces that after January 1, it will open a modern and up-to-date sales and show room in Macon, Ga. Plumbing and heating fixtures will be on display for the benefit of architects, owners, and builders.

◆

Noland Co. Opens Branch in Macon, Ga.

The Noland Co. announces the opening of another branch of the company at 311 Poplar street, Macon, Ga. This is the company's thirteenth branch in the southeast. C. P. Ward was named local manager to have charge of the territory of which Macon will be the headquarters. The Noland company recently purchased the entire stock of the Lowry Co.'s branch in Macon, and has remodeled the building formerly occupied by that company.

◆

Opens Showroom in Worcester, Mass.

A new showroom was opened early this month by The Universal Supply Co., at 221 Commercial street, Worcester, Mass. The display room covers 2,500 sq. ft. and is located in the heart of the business section of the city. Its decorative scheme, which involves an accordant effect in colors and the conservativeness of the arrangement of the presentation, is intended to command the attention of the public. The day on which the doors were first opened was set aside for its inspection by architects and builders while on the second day, plumbing and heating contractors as well as the public were guests. The occasion was well advertised in all of the local newspapers. James E. Devlin is president of the company and L. S. Farnum is treasurer.

◆

Copeland Products, Inc., Move to Mt. Clemens

Copeland Products, Inc., and Copeland Sales Co., 630 Lycaste street, Detroit, Mich., have moved to their new factory at 332 Cass avenue, Mt. Clemens, Mich.

◆

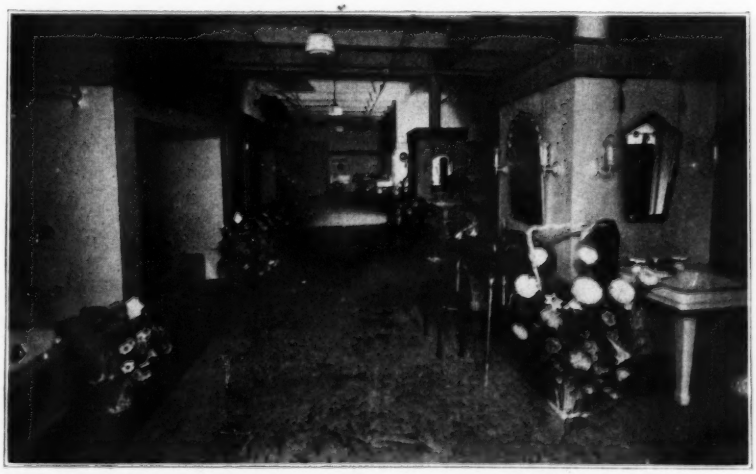
Chicago Oil Burner Association Elects Officers

The board of directors of the Chicago Oil Burner Association, Inc., held a meeting on Tuesday evening, November 19, at which H. A. Adams of the Wayne Heater Corp., Columbus, O., was elected to the office of vice president. C. M. Lockwood of Rayfield Mfg. Co., Chicago, Ill., and T. N. Andrew of the Timken-Detroit Co., Detroit, Mich., were elected to fill vacancies on the board of directors.

◆

Home Modernizing Bureau Acts to Stimulate Building

The executive committee of the Home Modernizing Bureau of the National Building Industries met recently with other industrial leaders at the Union League Club, Chicago, to take action toward co-ordinating the entire construction industry, in line with President Hoover's business-as-usual program. Among those who



The new showroom of the Universal Supply Co., Worcester, Mass.

took part in the conference, who are connected with the plumbing and heating industry, were R. G. Creviston of Crane Co., Chicago; Walter J. Kohler, Jr., and O. A. Kroos, both of Kohler Co., Kohler, Wis.; and Charles K. Foster of American Radiator & Standard Sanitary Corp.

◆

Moves to New Location

The Boiler, Tank & Pipe Co., Oakland, Calif., has moved from its Hollis street location to its new plant at 75th avenue and East 10th street. R. W. McDonough is manager of the business; Dan Linehan, secretary and treasurer; Frank Kutz, sales manager; and Albert Vinther, chief engineer.

◆

Sloan Valve Co. Combines Territories

The Sloan Valve Co., Chicago, Ill., has announced that its business in Virginia and North Carolina will be handled as one territory under the supervision of John L. Dorset, assisted by Elmer Oberst. Offices will be maintained in the Builders Exchange building, Richmond, Va.

Mr. Dorset has served the company in North Carolina for a number of years, while Mr. Oberst has been transferred from the Chicago office of the company.

◆

Will Handle Heating System

The Leader Boiler and Heater Company, 310 S. Michigan avenue, Chicago, Ill., has recently been organized to handle a complete heating system. T. E. O'Brien is president of the company. The company's plant is located at Decatur, Ill., and general sales headquarters are in Chicago.

◆

Leonard-Rooke Co. in New Building

Leonard-Rooke Co. of Providence, R. I., has just moved from 486-488 Broad street to its new building at 1360 Elmwood avenue, where it has an acre of floor space. The new factory is located on the shore line of one of the lakes in the Metropolitan park system in Providence.

◆

Bradley Company Appoints Sales Representatives

The Bradley Washfountain Co., Milwaukee, Wis., has appointed the M. M. Rivard Co., Kansas City, Mo., as sales representative for the western Missouri and Kansas territory. L. M. Bartlett Co., Minneapolis, Minn., has been placed in charge of the Minnesota, North Dakota and northwestern Wisconsin territory.

◆

About the Standardization of Unions

An announcement has been made by the United States Department of Commerce, Bureau of Standards, indicating that a satisfactory majority of acceptances of the recommended commercial standard for standard weight malleable iron or steel screwed unions have been filed by manufacturers, distributors and users. The standard was effective as of November 1 for new production and as of May 1, 1930, for clearance of existing stocks of non-standard unions.

◆

A. S. M. E. Holds Large Annual Meeting

Engineers from practically all parts of the United States and Canada gathered during the week of December 2nd to 6th at the Engineering Society building, 29 West 39th street, New York city, for the annual meeting of the American Society of Mechanical Engineers.

Mechanical engineering as a vital aid to industry and in the advancement of society was exemplified in more than fifty papers read at the meeting, which was attended by approximately two thousand delegates from the seventy local sections of the society, with a total membership of 19,000. Representatives were also present from the ninety-six student branches of the society in practically all of the leading universities and technical schools.

The members attending the technical sessions, held mornings and afternoons of the five-day meeting, heard papers prepared by experts from the sixteen professional divisions of the society. These covered discoveries and recent applications of scientific knowledge on the fields of hydraulic power, metals, mechanical springs, management, railroads, oil and gas power, aeronautics, textiles and refrigeration.

There will be a public hearing on the power test codes of the society.

The technical sessions opened with a paper by William W. Tefft raising the question of the relative value of steam power or hydro power. Turbines with adjustable blade propellers were described by C. R. Martin and vibrations in penstocks were discussed by J. P. Den Hartog. The factor of safety and working stresses was the subject of a paper by C. Richard Soderberg, while A. Nadai described the mechanics of the plastic state of metals.

In the afternoon the control of quality by the use of gauges was outlined by Earle Buckingham, and a description of turbine regulation was described by Forrest Nagler and A. Pfau. Such high matters in applied mechanics as torsional vibration dampers were explained by J. P. Den Hartog and J. Ormontroyd, while A. Madle expatiated on power application to oscillating axles.

Papers presented on the second day discussed the soot particles in New York City air, aerial tramways, gears, and pressure heads; also, the economy of gaso-

Group attending the recent convention of the Uniflow Mfg. Co. of Erie, Pa., held at the Lakeside Hotel, North East, Pa.

Burnham Boilers

For Hot Water Supply

May Be Ordered Also With Brass Fire Pots

The Burnham Catalogue gives full particulars, ratings and measurements of Burnhams for every heating purpose.

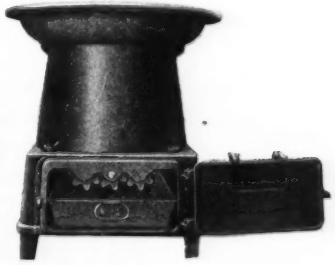
RUSTLESS all-brass hot water systems are becoming as common as hot-house strawberries in January. There didn't use to be frequent demand for boilers with all brass water ways; but now it's just a question of finding an otherwise satisfactory boiler equipped for use with modern all brass systems.

The Burnham water heating boilers have proved their heating qualities, under all conditions.

Burnhams with brass water sections are of exactly the same designs as Burnhams in cast iron. You get all the Burnham heating and fuel saving features, plus brass at every point the water passes on its way into the system.

Burnham Junior will supply hot water for a large house. Its tank capacity is 700 gallons.

Burnham Laundry stove is also a double duty boiler. Its three lid top opens up to full wash boiler width. It can be automatically regulated.



Burnham Boiler Corporation

IRVINGTON, N. Y.

Representatives in all principal cities of the United States and Canada

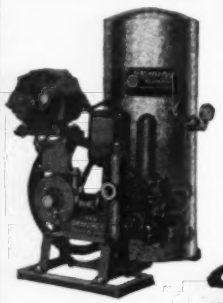


Fig. 2085

WRITE for Water System Catalog K which gives complete information on Deming Shallow and Deep Well Water Systems for practically all requirements.

THE DEMING CO.
Salem, Ohio :: Est. 1880

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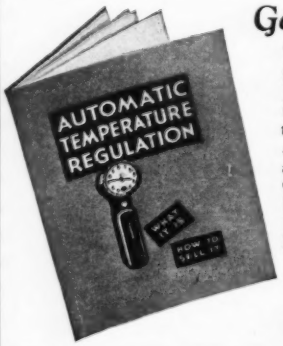

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Trupar Refrigeration is the answer to the trade's need for a real live line to merchandise.

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The line is complete—range of styles, sizes, colors, and is available at prices that mean sales and profits.

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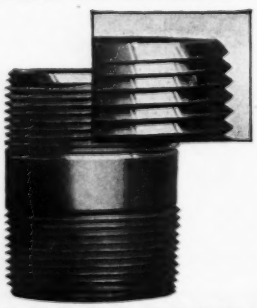
NIPPLES

Pick up any Ware Nipple and study the threading. You will see at a glance that each thread is perfectly cut, sharp and clean. That is why Ware Nipples save you so much time. They make up the first time



WARE COUPLING & NIPPLE CO.
Ware Mass.

line commercial vehicles, cutting metals at high speeds, and cutting fluids.

The following day, delegates heard papers on management and lubrication. There was a notable discussion on the use of engineering literature and on education and training for the industries of the non-college.

The papers on Thursday dealt with production management from three angles, and central-station power from two viewpoints. Railroads and oil and gas power required six papers, and the day ended with a symposium on the application of geometrical similarity and dimensional analysis in fluid flow.

The last day of the annual meeting was devoted to boiler feedwater, refrigeration, aeronautics, rail motor cars, textiles, and furniture production.

The following officers were installed: President, Charles Piez, president of the Link-Belt Co., Chicago, Ill.; Vice-President, Ralph E. Flanders, general manager of the Jones and Lamson Machine Co., New York City; 2nd Vice-President, Ernest Lee Jahncke, assistant secretary of the Navy; and 3rd Vice-President, Conrad N. Lauer, president of the Philadelphia Gas Works Co., Philadelphia, Pa. The vice-presidents whose terms extend over for the year are: R. L. Daugherty, William Elmer and C. E. Gorton.

The following are those whose terms as managers extend into 1930: F. H. Dormer; W. A. Hanley; H. N. Davis, C. A. Allen, R. M. Gates and E. C. Hutchinson. The three newly made managers are J. D. Cunningham, president of the Republic Flow Meter Co., Chicago, Ill.; C. F. Hirshfeld, chief of the research department, Detroit Edison Co., Detroit, Mich.; and H. V. Coes, industrial engineer, Ford, Bacon and Davis, New York City. Erick Oberg, editor of "Machinery," is treasurer and C. W. Rice is secretary.

◆

Death of W. T. Brace

William T. Brace, formerly general sales manager of Wolff Mfg. Co., Chicago, died suddenly on Thanksgiving morning, November 28, at Los Angeles, Calif. Mr. Brace was born on the west side of Chicago in 1871 and was for many years well known in the plumbing and heating industry in the Chicago territory. He was with the Wolff Co., which at that time was known as the Wolff Mfg. Co., from 1919 to 1923. Before joining the Wolff organization Mr. Brace was manager of the Chicago office of the J. L. Mott Iron Works, and prior to that he was with James B. Clow & Sons. He was a member of the Illinois Athletic Club and various other organizations in Chicago.

◆

Percy A. Clark Called by Death

Percy A. Clark, plumbing and heating contractor of Hibbing, Minn., and president of the Range Master Plumbers' Association, died recently in his 63rd year. Mr. Clark had been a resident of Hibbing for more than twenty-five years and was always active in community affairs.

He was a member of Mesaba Lodge No. 255, A. F. and A. M., a 32nd degree Mason and a member of the First Settlers Association. Surviving, besides his widow, are two sons and four brothers.

Bureau Participates in President Hoover's Business Survey Conference

The Plumbing and Heating Industries Bureau was invited to attend the National business survey conference of 250 leaders in American business and industry called by the Chamber of Commerce of the United States at the request of President Herbert Hoover. This conference was held at the Chamber of Commerce building, Washington, D. C., on December 5.

Representing the Plumbing and Heating Industries Bureau at the conference were Jere Sheehan, Jr., president of the bureau; Walter Klie, chairman of the bureau's executive committee; and E. L. Flentje, secretary-manager.

The Heating and Piping Contractors National Association was represented by Joseph C. Fitts, assistant secretary, who supported the bureau's committee by supplying a statistical analysis of the heating industry.

The purpose of this conference was to ascertain the present business situation, to forecast the trend of industry for the next six months, and to organize a permanent industrial body to co-operate with President Hoover and the department of commerce.

Representatives of American industry in attendance at the conference were invited to answer two questions:

1. What is the condition of your industry this year as compared with last year?

2. What are the prospects for the first six months of 1930 as compared with the first six months of 1929?

Following is the statement given to the conference by the Plumbing and Heating Industries Bureau:

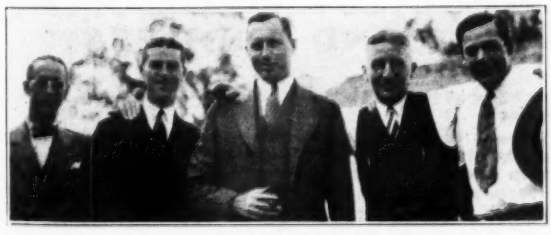
"In so far as labor is concerned, rates of wages have been generally stable for the past four years with the highest and median rates fixed and the average rate increasing slightly owing to the wage increases in cities having the lowest wage rates.

"For the last three years, generally speaking, the two industries have not employed all the men available, with somewhat more unemployment for the past ten months.

"Our industries show a decrease of 16.2 per cent in the sales of material for the first nine months of 1929 as compared with the corresponding period in 1928.

"As far as the next six months are concerned, we anticipate little increase over the period under discussion except such seasonal fluctuations as are normal in the industries. While we foresee an increase in new construction, we believe it will be of a character that will be of little significance to our industries.

"In view of the uncertainty with regard to any wide-



Edmund Henry of United States Sanitary Mfg. Co., J. Milliken of Kennedy Valve Mfg. Co., Robert McKeown, manufacturers' agent; Hiram Forbes of Walworth Co., and R. E. Shepherd of Ohio Brass Co. Photo taken at the outing of C. S. Mersick Co.

KROY Unit Heater

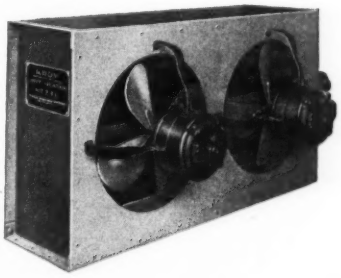
INCREASED Unit heater capacity at surprisingly low B. T. U. cost is supplied by Kroy Unit Heater No. 221, as illustrated. The Super-Fin coil is tested to 1000 lbs. hydrostatic pressure and is recommended for steam at any pressure up to 200 lbs. The multiple fans operate singly or in combination, thus giving maximum flexibility of control.

Ratings, specifications and data on request. Local offices in important cities.

York Heating & Ventilating Corp'n

Largest Producers of Unit Heaters

1573 Sansom St., Philadelphia



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BURKS Super-Turbine PUMPS

A New Application of Two New Burks Pumps—

Will Not Steam-Bind ! ! !

Style 100

Write today for Bulletin No. 89 showing Prices, Capacities and Exceptional Performance of these Condensation Units.

Your profit is generous.

DECATUR PUMP CO.

Decatur :: Illinois

Originators and Exclusive Manufacturers of Burks Turbine-Type Pumps That 'Pump Air!

Free!

PAIR OF GLOVES WITH A CARTON OF "X" (6 CANS)

Buy a carton of "X" Liquid — You get a snappy display stand and a pair of gloves — FREE — in each carton. The display stand — placed in your window —is bound to boost your overhaul business.

You get six cans for the price of five — when you buy "X" by the carton. Ask your jobber salesman to send you one of these profit-boosting cartons today.

"X" LABORATORIES
25 West 45th St. New York City

FREE BLOTTERS!

IMPRINTED WITH YOUR NAME AND ADDRESS.

Are you as good a merchant as you are a steamfitter?

These blotters — sent to your customers and prospects — will bring many inquiries and will help you to get your share of the profitable overhaul business.

Just write BLOTTERS on your letterhead — mail it to us and we'll do the rest.

spread residential construction program and the incidental delay in inaugurating a national building program, may it not be well to consider the immediate possibilities offered by rehabilitating existing structures?

"This can be done economically at this time and will not only effect savings in operation of buildings and enhance their value, but will also alleviate unemployment."

Supplementary to this report, the bureau presented to the conference the following detailed statistics on the relative condition of the industries for the first nine months of 1929 and the first nine months of 1928:

Enameled Ware (Units)	1928	1929	% Inc. or Dec.
Bath Tubs			
Shipments	895,970	774,396	—13.6
New Orders	993,702	806,166	—18.9
Lavatories			
Shipments	1,015,145	897,497	—11.6
New Orders	1,127,717	946,048	—16.1
Sinks			
Shipments	1,042,491	927,640	—11.0
New Orders	1,148,750	981,935	—14.5
Miscellaneous			
Shipments	433,412	360,739	—16.8
New Orders	452,034	377,253	—16.5
Stocks on hand—slightly above normal			
Porcelain Plumbing Fixtures (Units)	1928	1929	% Inc. or Dec.
Shipments	148,788	98,624	—33.7
New Orders	209,833	105,326	—49.8
Vitreous China Plumbing Fixtures (Units)			
Shipments	2,407,755	2,301,191	— 4.4
New Orders	2,404,139	2,255,320	— 6.2
Stocks on hand—normal			
Cast Iron Boilers and Radiators (thousands of pounds)	1928	1929	% Inc. or Dec.
Round Boilers			
Shipments	110,298	99,853	— 9.5
New Orders	112,527	92,910	—17.4
Square Boilers			
Shipments	221,533	174,656	—21.2
New Orders	229,584	177,654	—22.6
Stocks on hand—slightly above normal			
Radiators (thousands of square feet)	1928	1929	% Inc. or Dec.
Shipments	105,276	86,782	—17.6
New Orders	112,945	91,962	—18.6
Stocks on hand—normal			

In pointing out to the conference that its survey of the plumbing and heating industries showed a decrease of 16.2 per cent for the period from January 1, 1929, to October 1, 1929, as compared with the corresponding months in 1928, the bureau called attention to the fact that this decrease has come about in spite of the fact that the wholesale prices of typical plumbing and heating commodities have been increased only 46 per cent above the 1913 level while the index of construction costs is 206.9 for the period under discussion as compared with 100 in 1913.

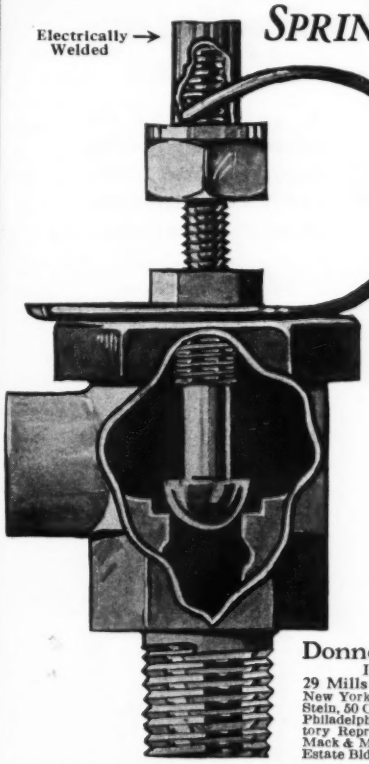
"It is not particularly difficult to give the reason for the present depression in our industries," the bureau stated. "Building as a whole has dropped 15.1 per cent for the period under discussion. While it is true that commercial and industrial building showed a slight increase, this favorable trend was overcome by the larger decrease in residences, etc., from which our industries get their major volume.

"Our industries' business comes from two principal sources:

1. New construction.
2. Replacement, additions and repairs.

"Naturally any drop in new construction affects about

DONNELLY OUTER SPRING VALVE



Protects the System

Use the Donnelly Outer Spring Relief Valve for dependability. The spring can neither corrode nor rust and consequently the life of the valve is greatly lengthened. Write us for complete details.

Donnelly Mfg. Co.
Incorporated
29 Mills St., Malden, Mass.
New York Representative: Henry Stein, 50 Cliff St., New York City; Philadelphia and Southern Territory Represented by Derbyshire, Mack & Morgan, Inc., 923-5 Real Estate Bldg., Philadelphia, Pa.

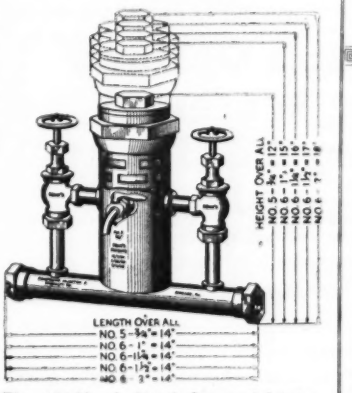


Fig. 118 No. 5—¾-inch Compound Injector. Patented in U. S., Canada and Foreign Countries.

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Removal of all foreign and dangerous substances from water has long been the aim of the makers of Dehn Automatic Water Softeners.

For more than 25 years, Dehn has been providing *safe* water. The Dehn Automatic Water Softener will keep your customers satisfied and pay you a real profit.

Write today for full information or ask your jobber.

COMPOUND INJECTOR & SPECIALTY COMPANY
419-421 D. North Laramie Avenue - - - Chicago, Illinois

Originators, designers and sole manufacturers of

1897 DEHNSANIGARD 1929
THE QUALITY GOODS

"25 Million Gallons of Hot Water every 24 Hours!"
ROCHESTER CIRCULATORS
are driving this modern heat carrier through thousands of radiators now!
Heating Men everywhere have been quick to grasp its possibilities.—Complete New Heating Systems cost less to install with it than without.—And they cost much less to run, with every radiator always hot.—For old, sluggish systems it is the one sure cure, and the cost is always low!
A correct machine for every pipe size, 1½ to 12".
Write today for full details.
The Rochester Circulator Co.
P. O. Box No. 23 Rochester, N. Y.

60 per cent of our industries' volume. The remaining 40 per cent fluctuates with our ability to convince the public of the soundness of increasing their sanitary and heating equipment or replacing wornout or obsolete equipment.

"Our industries foresaw the present building situation some years ago and this organization's efforts have been, over a period of years, directed toward emancipating our industries from the precarious fluctuations of the new construction volume. We believed that we could stabilize our volume in the degree that we could develop the replacement and additional equipment market. We have been moderately successful in our efforts but are mindful that the task of developing our industries into an organized selling unit can only be successful through consistent effort over a period of years.

"Our only hope for increased volume will be through an increase in the residential construction market and through increased effectiveness in our merchandising efforts."

President Hoover addressed the conference and explained that "The extension and organization of the construction and maintenance work of the country" was the object in calling the conference. The president said that the great field of construction could be made into a balance wheel of stability. Perhaps the keynote of his address was this terse statement: "I have no desire to preach. I may, however, mention one good old word—work."

Other speakers were R. P. Lamont, secretary of commerce; Julius Klein, assistant secretary of commerce; William Butterworth, president of the Chamber of Commerce of the United States; and Julius H. Barnes, chairman of the board of the chamber.

All speakers stressed the importance of the construction industry and many pointed out the great market possibilities in rehabilitation work. Particularly Mr. Klein stressed the modernizing market.

"This is the time for American business to modernize its plants and factories, as well as for the home-owner to modernize his home," Mr. Klein said. "In the years immediately behind us, American industry has been so busy with production that there hasn't been enough time to fix up the plants. There is time now. It should be done."

Mr. Klein also devoted considerable attention to the problems of the small retailer. He said that a survey of the department of commerce showed that an average of 30 grocerymen fail in Louisville, Kentucky, every month and an average of 32 start in business and that a survey of the restaurant business in Kansas City, Mo., revealed that out of some 1,080 such establishments doing business there in 1928, 551 went out of business before the end of the year and almost exactly the same number of new restaurants were opened up in the same city.

After calling attention to the terrific economic waste in this turnover of retailers, Mr. Klein turned to the manufacturers and wholesalers at the conference and advised them that the next time a young fellow comes to them and says he wants to start in business, they should talk with him and find out if he is really fitted to go into business for himelf. Mr. Klein advised the manufacturers and wholesalers to caution the young prospective business man against the danger and risk in business

and point out to him the high mortality in business.

After the above talks were given, representatives of the major industries present were called on for reports on the condition of their industries. Gigantic anticipated expenditures were reported by railroads, utilities, steel and other industries. Building material representatives, while generally optimistic for the "long pull" were cautious in committing themselves about the immediate future. One thought was injected that aroused considerable interest, namely that cities are not generally overbuilt. In Chicago, for example, only 4.7 per cent of residence and store property is vacant. Ten per cent vacancies are considered normal.

◆

Lincoln Electric Co. Appoints Sales Representatives

The Lincoln Electric Co., Cleveland, Ohio, has announced the recent appointment of two new district sales representatives.

R. B. Tuhey has been advanced to district representative at Indianapolis, Ind., with offices at 517 Peoples Bank building; and a promotion places S. H. Taylor in the position of district sales representative at Los Angeles, Calif., with headquarters at 812 Mateo street.

◆

Move to New Location

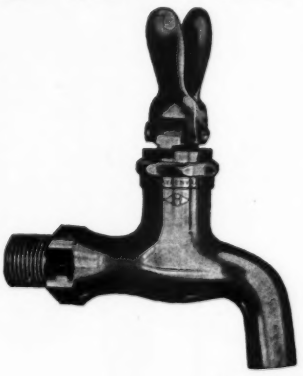
The Buffalo Forge Co. and the Buffalo Steam Pump Co., Buffalo, N. Y., have removed their Chicago office and stock room from 17 North Jefferson street to 15 North Jefferson street.

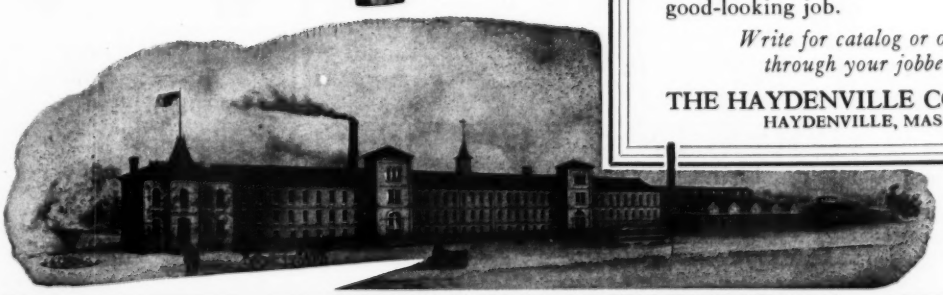
Power Show Attracts Many Visitors

During the week of December 2nd to 7th, New York City, through the Power Show, was temporarily turned into the engineering center of the world. Thousands of engineering experts, plant superintendents, equipment manufacturers, technical school students and others visited Grand Central Palace where the display, officially known as the 8th National Exposition of Power and Mechanical Engineering was staged. From a comparatively small array of a few exhibitors seven years ago to a gigantic display of more than 500 exhibits today, this exposition has seen a steady and remarkable growth. A feature of the exposition was the evidence of the strides made in the automatic control of enormous power used in many of our giant industries.

The show was not only of interest to Americans, but to engineering authorities from many parts of the world, who observed it closely. Registrations at the Exposition indicated that visitors at the show were from more than 1000 cities and towns throughout the United States, Canada, and abroad. Among those from distant places registered at the show were C. H. O. Pook of the Canadian Westinghouse Manufacturing Co.; Joseph Lavicka, Czechoslovakia; Manuel Vigil, Havana, Cuba; Toni Glassmacher, Cologne, Germany; James Draper, Porto Rico; G. S. Gray, Honolulu; N. E. McClelland, London, England; A. Appecleary, Stockholm, Sweden; F. Slane, Colombia, S. A.; D. F. J. Pereboom, R. F. Luce, Montpellier, France; Y. Kohzu, Tokyo, Japan; Hans

HAYDENVILLE
PRODUCTS





WHEN brass goods are Haydenville made, they are made with all of the care and accuracy that attends the manufacture of a good watch.

There's never the need of experimenting or guessing—insist upon Haydenville for a lastingly satisfactory and good-looking job.

Write for catalog or order through your jobber.

THE HAYDENVILLE COMPANY
HAYDENVILLE, MASS.

Buchspies, Berlin, Germany; Dr. Alexander Marx, Frankfurt, Germany; Francis Shea, Sydney, Australia; Leslie Shaw, Vancouver, British Columbia; H. R. Holland, Santiago de Chile; W. H. Judy, Buenos Aires, Argentina; Fred W. Puppe, Berlin, Germany; T. G. Hughes, Dorchester, England; Kuan Ting Wang, China; B. F. Thumble, Sweden; Captain Nils Wallenius, Stockholm, Sweden; William Diez, Paris, France; A. A. Terpougoff, and E. G. Krotoff, Leningrad, Russia.

In the exhibition was found machinery varying in size from minute apparatus to huge power machines occupying more space than the average city apartment. In addition, new inventions, new metals, precision instruments, chemicals and heating plants as well as hundreds of other developments of interest in power transmission and development were shown.

Through the industrial exhibits it was learned that there has been a huge expansion in industry with a corresponding increase in power, the use of coal has proportionately decreased because inventive genius has made it possible for the same coal to produce today twice as much power as heretofore.

Among the exhibitors were:

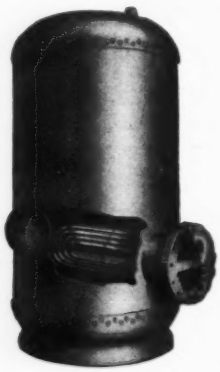
Advance Engineering Co., New York; Aerofin Corp., Newark, N. J.; Alexander Bros., Inc., Philadelphia, Pa.; Allen Air Appliance Co., Inc., New York; Allen-Bradley Co., Milwaukee, Wis.; Allen Mfg. Co., Hartford, Conn.; Allen-Sherman-Hoff Co., Philadelphia, Pa.; Allis-Chalmers Mfg. Co., Pub. Dept., Milwaukee, Wis.; Allpax Co., Inc., Mamaroneck, N. Y.; American Blower Corp., Main Office, Detroit, Mich.; American Brass Co., Waterbury, Conn.; American Gas Association, Inc., New York.; American Pipe Bending Machine Co., Inc., Boston, Mass.; American Radiator Co., New York; American Schaffer & Budenberg Corp., Brooklyn, N. Y.; American Society of Mechanical Engrs., New York; American Society of Heating & Ventilating Engineers, New York; American Water Softener Co., Philadelphia, Pa.; Ames Pump Co., Inc., New York; Anaconda Copper Mining Co., New York; Andale Co., Philadelphia, Pa.; Armstrong Cork & Insulation Co., Lancaster, Pa.; Ashton Valve Co., New York: Home Office, Boston, Mass.; Atlas Oil Burner Corp., Brooklyn, N. Y.; Austin Heat Transference Corp., Port Chester, N. Y.

Babcock & Wilcox Co., New York; Babcock Wilcox Tube Co., Beaver Falls, Pa.; Badger, E. B., & Sons Co., Boston, Mass.; Bailey Meter Co., Cleveland, Ohio; Baker, R. H., Co., Inc., Cambridge, Mass.; Baldwin Chain & Mfg. Co., Worcester, Mass.; Bearium Bearings, Inc., Boston, Mass.; Belfield, H., Co., Philadelphia, Pa.; Bernitz Furnace Appliance Co., Boston, Mass.; Bethlehem Steel Co., Bethlehem, Pa.; Biax Flexible Shaft Co., New York; Bigbie Grate & Forced Draft Equip. Corp., New York; Binks Mfg. Co., Chicago, Ill.; Black & Decker Mfg. Co., Towson, Md.; Boiler Engineering Co., Newark, N. J.; Borden Co., Warren, Ohio; Boston Gear Works Sales Co., Quincy, Mass.; Bowser, S. F. & Co., Inc., Fort Wayne, Ind.; Brener Electric Mfg. Co., Chicago, Ill.; Bristol Co., Waterbury, Conn.; Brown Instrument Co., Philadelphia, Pa.; Bryan Boiler Co., Greenwich, Conn.; Bundy Steam Trap Co., New York: Main Office, Nashua, N. H.; A. M. Byers Co., Pittsburgh, Pa.

Campbell, Andrew C., Co., Bridgeport, Conn.; Carboloy Co., Inc., New York; Carborundum Co., The, Niagara Falls, N. Y.; Carrier Engineering Corp., Newark, N. J.; A. W. Cash Co., Decatur, Ill.; Centrifix Corp., Cleveland, Ohio; Chicago Pipethread Mch. Co., Racine, Wis.; Clements Mfg. Co., Chicago, Ill.; Cochrane Corp., Philadelphia, Pa.; Connery Co., Inc., Philadelphia, Pa.; W. B. Connor Co., Inc., New York; Consolidated Ashcroft Hancock Co., Bridgeport, Conn.; Cooper-Hewitt Electric Co., Hoboken, N. J.; Crane Company, Chicago, Ill.

Dampney Co. of America, Boston, Mass.; Dardelet Thread Lock Corp., New York; Davies & Thomas Co., Catasauqua, Pa.; Dearborn Chemical Co., New York; DeBothezat Impeller Co., Inc., New York; Dennis Engineering Co., Columbus, Ohio; D'Este, Julian Co., Boston, Mass.; Detroit Seamless Steel Tubes Co., Detroit, Mich.; Detroit Stoker Co., Detroit, Mich.; Diamond Expansion Bolt Co., Garwood, N. J.; Diamond Power Specialty Co., Detroit, Mich.; Joseph Dixon Crucible Co.,

VERTICAL TANKS ~ EXPANSION JOINTS

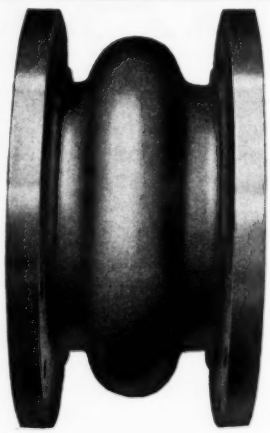


These Vertical Tanks can be furnished either with or without heating elements.

For Every Type of Job

Gerstein & Cooper Vertical Copper Storage Tanks are made of the finest grade rolled Lake Copper. They have been developed to their present high quality only after years of research and experience.

Gerstein & Cooper Expansion Joints will adequately take care of all low pressure lines. They can be furnished in as many corrugations as necessary.



The accuracy with which this joint is made is the one big reason they stand up so well on the job. Use them on all pressures up to 25 pounds.

GERSTEIN & COOPER CO.

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New York Office: 166 W. 72nd St., N. Y. C.

Canadian Agents:
G. Mason Price, 832 St. James St., Montreal, Quebec, Canada

Pump rating *merely* in sq. ft.
may prove a boomerang . . .

To Insure Heating Pump Performance

tested air and water capacities should substantiate published ratings

CONDENSATE to be removed from a return line vacuum heating system may vary in volume as much as 40%. Quantity of air or vapor also fluctuates widely. For this reason, square feet of installed radiation is not the only factor to consider in choosing the correct size of pump to use. Several others must be recognized. Pressure in the system, efficiency of traps, tightness of joints, fittings and valves cannot be overlooked.

So, every Jennings Vacuum Heating Pump is rated by guaranteed air and water capacity determined by actual test. For a specified amount of radiation, a given size of Jennings Pump is recommended only if its combined air and water capacity is proved adequate to handle this radiation under all conditions. A Jennings Pump with the air and water capacities given in the table can be relied on to serve satisfactorily any reasonably well installed system for the life of the building.

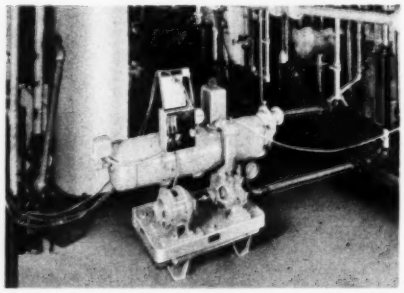
Actual Tests Determine Jennings Pump Capacity

Air and water capacities are accurately measured. The pump is tested with its own motor and control equipment. The entire assembly is made to prove its fitness for the work which it has to perform. A certified report of the test is furnished to the purchaser.

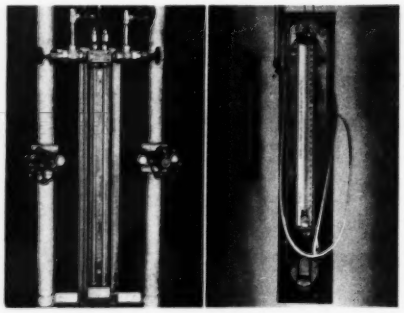
CAPACITIES OF
JENNINGS VACUUM HEATING PUMPS

Pump Size	Equivalent Direct Radiation Square Feet	Water Capacity G.P.M.	Air Capacity Cu. Ft. Per Min.	Orifice Diameter Inches	MOTOR HORSEPOWER			
					10 Lbs.	20 Lbs.	30 Lbs.	40 Lbs.
T	2,500	4	3	7/64	1/3	1/2	1	1 1/2
U	5,000	9	3	7/64	1/3	1/2	1	1 1/2
V	10,000	14	6	5/32	1	1	1 1/2	2
B	16,000	22	9	3/16	1 1/2	2	3	5
C	26,000	35	15	1/4	2	3	5	5
D	40,000	60	19	9/32	3	5	5	7 1/2
E	65,000	90	34	3/8	5	5	7 1/2	10
F	100,000	140	50	7/16	7 1/2	10	15	15
*G	150,000	200	102	5/16 & 5/16	10	15	UPON REQUEST	
*H	300,000	400	171	2-1/16&1-9/16		UPON REQUEST		

* *The last two sizes are not of the manifold type.*

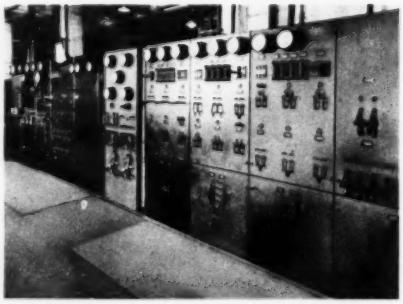


JENNINGS VACUUM HEATING
PUMP ON TEST STAND



TYPE OF VENTURI METER AND VACUUM
MANOMETER USED IN TESTING JENNINGS
VACUUM HEATING PUMPS

STANDARD TEST ORIFICE



SWITCHBOARD IN NASH TEST PLANT WHICH
FURNISHES ELECTRIC CURRENT OF ANY
VOLTAGE, PHASE AND FREQUENCY

Water Capacity Is Tested by Venturi Meter

Water capacity is checked by testing the volume of water in g.p.m. that the pump removes from the receiving tank *under the given vacuum* and delivers against the specified discharge pressure.

Air Capacity Is Measured by Calibrated Orifice

Air capacity is found by means of a calibrated orifice of specified diameter, reamed in a brass plate one-eighth inch thick, located in the pump suction, and communicating with the receiving tank. This orifice determines the cubic feet per minute of air that the pump withdraws from the receiving tank and discharges to the atmosphere.

Air capacity is determined at the same time that the pump is delivering its rated volume of water. Water capacity is measured while the pump is handling its maximum rated quantity of air.

Only by such *tested* air and water capacities can good heating pump performance be assured. It pays to demand a certified factory test report, and to substantiate this wherever possible by a second test on the job.

CERTIFIED REPORT
OF TEST

Jennings Pumps

NASH ENGINEERING CO.
SOUTH NORWALK, CONN., U. S. A.

Jersey City, N. J.; Dodge Mfg. Corp., Mishawaka, Ind.; Doehler Die Casting Co., New York; Domestic Stoker Co., New York; Dri-Steam Valve Sales Corp., New York; C. A. Dunham Co., Chicago, Ill.; Durametallic Corp., Kalamazoo, Mich.; Dunn, Struthers, Inc., Philadelphia, Pa.; Duriron Co., Inc., Dayton, Ohio.

Ediplate Corp., Orange, N. J.; Edward Valve & Mfg. Co., E. Chicago, Ind.; Ellison Draft Gage Co., Chicago, Ill.; Engineer Company, New York; Engelhard, Charles, Inc., Newark, N. J.; Erie City Iron Works, Erie, Pa.; Ernst & Co., Newark, N. J.; Everlasting Valve Co., Jersey City, N. J.

Fairbanks Co., New York; Falk Corp., Milwaukee, Wis.; Fawcus Machine Co., Pittsburgh, Pa.; Fire King Stoker Co., Indianapolis, Ind.; Fisher Governor Co., Marshalltown, Iowa; Fitzgibbons Boiler Co., New York; Foster Engineering Co., Newark, N. J.; Foxboro Company, Foxboro, Mass.; Frank, O. E., Heater & Eng. Co., Buffalo, N. Y.; Fuller Lehigh Co., Fullerton, Pa.; Fulton-Sylphon Co., Knoxville, Tenn.; Fyre-Freez Corp., New York.

Ganschow, William Co., Chicago, Ill.; Garlock Packing Co., Palmyra, N. Y.; Gears & Forgings, Inc., Cleveland, Ohio; General Electric Co., Schenectady, N. Y.; General Insulating Products Co., Alexandria, Ind.; General Stoker Corp., New York; Gillis & Geoghegan, Inc., New York; Girtanner Engineering Corp., New York; Gibson & Halpern, New York; Gordon, James T. Co., New York; Green Fuel Economizer Co., Beacon, N. Y.; Grinnell Co., Inc., Providence, R. I.; Gun-Fil Corp., Philadelphia, Pa.

Hagan Corporation, Pittsburgh, Pa.; Hahn Engineering Co., Lancaster, Pa.; Hanson-Whitney Mch. Co., Hartford, Conn.; Harbison-Walker Refractories Co., Pittsburgh, Pa.; Hardinge Co., Inc., York, Pa.; Hartzell Propeller Co., Piqua, Ohio; Heating, Piping & Air Conditioning, New York; Hoffman Specialty Co., Waterbury, Conn.; Houghton, E. F. & Co., North Philadelphia, Pa.; Howell Electric Motors Co., Howell, Mich.; Hutchinson Mfg. Co., New York; Huyette, Paul B., Co., Inc., Philadelphia, Pa.

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Keating, E. F. Pipe Bending & Supply Co., Hartford, Conn.; Kellogg, M. W. Co., New York; Kelly Co., Chicago, Ill.; Kennedy-Van Saun Mfg. & Engr. Co., New York; Keystone Lubricating Co., Philadelphia, Pa.; Keystone Refractories Co., New York; Kidde, Walter & Co., Inc., New York; Kieley & Mueller, Inc., New York; Kilsoot-Carbocide Co., Inc., New York; King Refractories Co., Buffalo, N. Y.; Kings County Lighting Co., Brooklyn, N. Y.; "Klingerit" Inc., New York; Korfund Company, Inc., New York; Kraissl Company, The, New York.

La Bour Company, Elkhart, Ind.; La Favorite Rubber Mfg. Co., Hawthorne, N. J.; Lancaster Iron Works, Inc., Lancaster, Pa.; Lead Lined Iron Pipe Co., Wakefield, Mass.; Leavitt Machine Co., Orange, Mass.; Leeds & Northrup Co., Philadelphia, Pa.; Leslie Co., Lyndhurst, N. J.; Lewis Welding Co., Cambridge, Mass.; Limitorque Corporation, The, New York; Linde Air Products Co., New York; Link-Belt Co., Chicago, Ill.; Liquidometer Corp., Long Island City, N. Y.; Little, Wm. P. Co., The, Stratford, Conn.; Lunkenheimer Company, Cincinnati, Ohio.

McAvoy Products Co., Chicago, Ill.; Manistee Iron Works Co., Manistee, Mich.; Manning, Maxwell & Moore, Inc., New York; Mason Regulator Co., Boston, Mass.; Mayflower Oil

Thomas Ireland, Crane Co.; C. W. Farrar, president of Excelso Products Corp.; Irving Ralph, American Brass Co. Photo taken at the recent meet of the Western New York Trade Golf Association

Undoubtedly

The Most Popular Automatic Water Heater Priced to Fit Everyone's Pocketbook

15 Gal. $50	30 Gal. $70
20 Gal. $55	40 Gal. $85

Distributed by the Plumbing Trade at a Nice Profit.

Why wouldn't it be the Most Popular?

John Wood Mfg. Company
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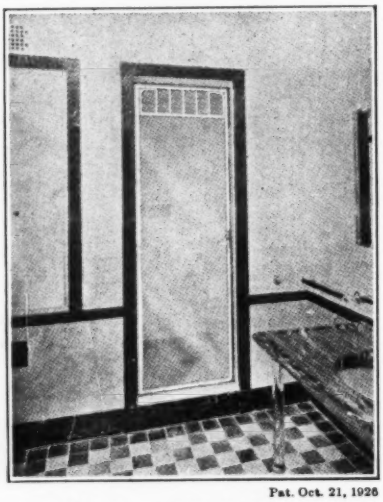
ADJUSTABLE SHOWER-STALL DOORS



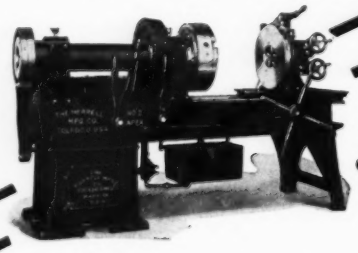
Pat. Oct. 21, 1926

We furnish Shower-Stall Doors, Bath-tub Shields and Partitions in standard sizes or make them according to specifications.

Illustrated booklet will be forwarded upon request

G. M. KETCHAM MANUFACTURING CORP.
83 Washington St. :: Brooklyn, N. Y.

YOUR PROPOSAL IS ACCEPTED



No. 3 APEX Capacity 1" to 6" Pipe

This good news is being received daily by users of the new Merrell Apex machines. The quality of threads produced by the "Merrelapped" dies make leaks almost impossible.

When equipped with flange gripping rear chuck many joints are made up by machine ordinarily made up by hand.

Threading, cutting off and making up are done with such speed that even present day unscrupulous competition is successfully met.

Join our family and smile again.

MERRELL
PIPE THREADING (For BETTER Threads) MACHINES

944 Curtis St. - Toledo, O.

A Pipe Machine for Every Purpose — ¼" to 12" Capacities

Burner Corp., West New York, N. J.; Mercoid Corp., Chicago, Ill.; Merrick Scale Mfg. Co., Passaic, N. J.; Midwest Manufacturing Co., Bradford, Pa.; Midwest Piping & Supply Co., St. Louis, Mo.; Millers Falls Co., Millers Falls, Mass.; Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.; Mixing Equipment Co., Inc., New York; Morrison Machine Co., Paterson, N. J.; Morse Chain Co., Ithaca, N. Y.; Moto Meter Gauge & Equip. Corp., Long Island City, N. Y.; Motor Tool Specialty Co., Chicago, Ill.; Murray, Thomas E., Inc., New York; Murray Radiator Co., New York; Nash Engineering Co., South Norwalk, Conn.; Nathan Mfg. Co., New York; National Co., Malden, Mass.; National Lead Co., New York; National Tube Co., Pittsburgh, Pa.; Nackar Water Softener Corp., Detroit, Mich.; Neemes Foundry, Inc., Troy, N. Y.; Nicholson, W. H. Co., Wilkes Barre, Pa.; Norma-Hoffman Bearings Co., Stamford, Conn.; Northern Equipment Co., Erie, Pa.

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Paige & Jones Chemical Co., Hammond, Ind.; Parker Appliance Co., Cleveland, Ohio; Peabody Engineering Corp., New York; Permutit Co., New York; Pipe Saver Corp. of America, Carthage, N. Y.; Pitts & Kitts Mfg. & Supply Co., New York; Pittsburgh Piping & Equipment Co., New York: Pittsburgh, Pa.; Plibrico Jointless Firebrick Co., Chicago, Ill.; Powell, Wm., Co., Cincinnati, Ohio; Prat-Daniel Corp., New York; Pratt & Whitney Co., Hartford, Conn.; Preferred Utilities Co., Inc., New York; Pyrometer Instrument Co., New York.

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Unishear Co., Inc., New York; Universal Gear Corporation, Chicago, Ill.; Universal Packing Corp., Pittsburgh, Pa.

Van Dorn & Dutton Co., Cleveland, Ohio; Van Dorn Electric Tool Co., Cleveland, Ohio; Veeder-Root Inc., Hartford, Conn.; Vogt, Henry Machine Co., Louisville, Ky.; Vulcan Soot Cleaner Co., Du Bois, Pa.

Walworth Company, Boston, Mass.; Warren Webster & Co., Camden, N. J.; Watts Regulator Co., Lawrence, Mass.; Webster Tallmadge & Co., Inc., New York; Weston Electrical Inst. Co., Newark, N. J.;

Wheeler, C. H. Mfg. Co., Philadelphia, Pa.; Wheland Company, Chattanooga, Tenn.; Whitney Metal Tool Co., Rockford, Ill.; Williams Tool Corporation, New York: Main Office, Erie, Pa.; Wing, L. J. Mfg. Co., New York; Wright-Austin Co., Detroit, Mich.

"X" Laboratories, New York.

Yarnall Waring Co., Philadelphia, Pa.

◆

George G. Harvey Succumbs After Short Illness

George G. Harvey, president of A. Harvey's Sons' Mfg. Co., Detroit, Mich., notice of whose death was published in the November 30 issue of DOMESTIC ENGINEERING, had been ill for only a week before he succumbed.

Mr. Harvey, who was in his 58th year, had been associated with the Harvey business, which was founded by his grandfather, Andrew Harvey, for nearly 40 years. The Harvey company goes back more than 75 years under this single firm name to its foundation on the remains of a brass foundry, opened in Detroit shortly before the Revolution, by Solomon Davis.

George G. Harvey

George G. Harvey became president of the company last December on the death of his uncle, James Harvey, being before that the secretary-treasurer for many years.

Mr. Harvey was educated in the Detroit primary and secondary schools, and was then graduated from Alma College, and later studied at the Detroit Business University.

He was married in 1907 to Zelma A. Woodbeck, of Armada, who survives him. He is also survived by three daughters, three brothers and two sisters.

Mr. Harvey was a member of the Detroit Commandery No. 1, Knights Templar, the Detroit Consistory, the Dearborn Country club, Ingleside and Rotary clubs. He was a director of the Commonwealth Commercial State bank.

◆

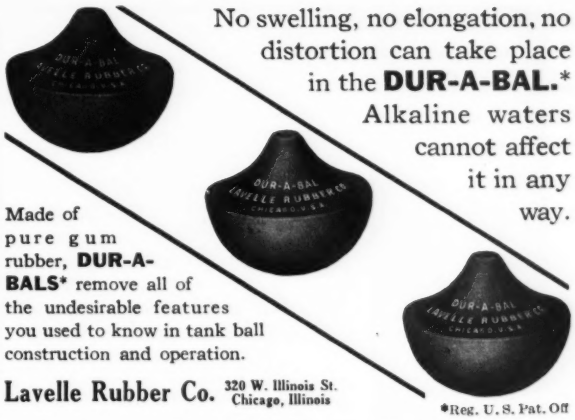
Death of Warren E. Mumford

Warren E. Mumford, metallurgist for the Malleable Iron Fittings Co., Branford, Conn., died at his home in Branford on November 15. He was in his 62nd year and a native of Webster, Mass. Mr. Mumford was a graduate of the Worcester Institute of Technology, and at the time of his death was treasurer of the Branford chamber of commerce.

◆

A. S. H. & V. E. and A. S. M. E. Will Hold Joint Meeting

The Western New York Chapter of the American Society of Heating and Ventilating Engineers and the American Society of Mechanical Engineers will hold a joint meeting in Rochester, N. Y., on Thursday, December 19. Meetings will be held in the afternoon and evening. D. J. Mahoney is secretary of the Western New York Chapter.



No swelling, no elongation, no distortion can take place in the **DUR-A-BAL.*** Alkaline waters cannot affect it in any way.

Made of pure gum rubber, **DUR-A-BALS*** remove all of the undesirable features you used to know in tank ball construction and operation.

Lavelle Rubber Co. 320 W. Illinois St. Chicago, Illinois

*Reg. U. S. Pat. Off

Copper Tubing Cuts 33⅓% from the Labor Cost of Installing Oil Burners

Send for prices on "Extra Heavy Tube"
Also Specifications on "Unit Heaters"

WOLVERINE TUBE CO.

SEAMLESS COPPER BRASS & ALUMINUM

1417 Central Ave. Detroit, Mich.

Stop Stoppages!

Stoppages in drain pipes just simply melt away under the cleansing power of Desolvo. Take it with you to every job. There's many a dollar profit in stopped up pipes for the plumber who has Desolvo.

THE CHAMBERLAIN CO. Pittsburgh, Penna.

A Real Relief Valve

The Nelson Relief Valve is the only one with an external phosphor bronze spring which cannot rust or corrode.

Can be adjusted to any pressure required on the job; when maximum pressure adjustment is reached, you will hear a click.

"Built with a click"

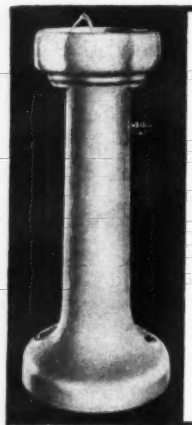
ESTABLISHED 1894

THE STACK HEATER COMPANY

BALL COCKS, INDIRECT HEATERS, GAS WATER HEATERS, HEAT INTERCHANGERS, HOT WATER GENERATORS — STACK PRODUCTS — RELIEF VALVES, NO-TANK VALVES, NONBRASS VALVES, STEAM WATER MIXERS, PRESSURE REDUCING VALVES

TWO HUNDRED AND FIFTY STUART STREET
BOSTON

Ask your jobber, and write us for Catalog No. 36.



AUTOMATIC STREAM CONTROL

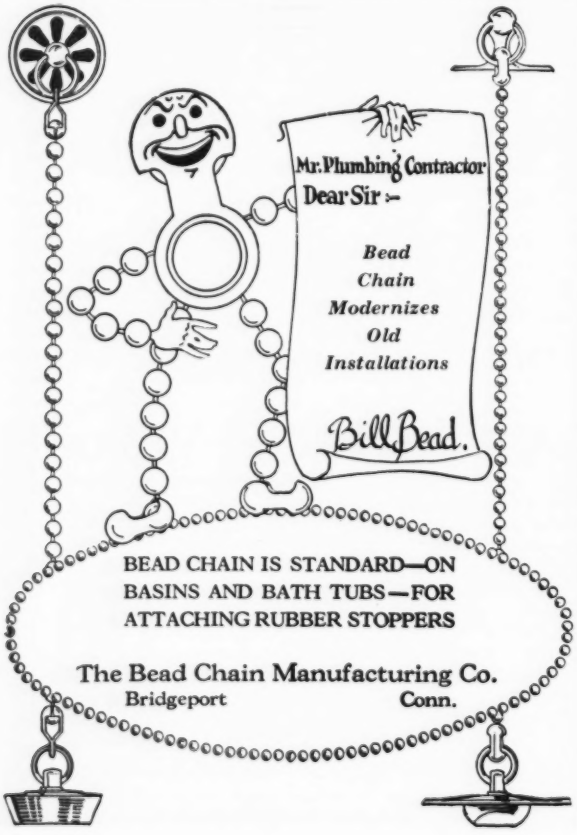
Automatic stream control—a practical, patented, exclusive Halsey Taylor feature—stream always uniform in height regardless of pressure variation . . . two-stream projector acts as a further assurance of a SANITARY drinking stream! Real selling features!

Why Not Sell the Best?

Considering the fact that their many patented features can be had without sacrifice of beauty, design or economy, there is no reason why you should sell any but the most hygienic and least troublesome fountains —HALSEY TAYLOR!

THE HALSEY W. TAYLOR COMPANY
WARREN, O.

HALSEY TAYLOR
Drinking Fountains



BEAD CHAIN IS STANDARD—ON BASINS AND BATH TUBS—FOR ATTACHING RUBBER STOPPERS

The Bead Chain Manufacturing Co.
Bridgeport Conn.

New Plant Nears Completion

The new plant of the Woodward-Wanger Co., of Philadelphia, Pa., is rapidly nearing completion. This new structure is rising on the site of the old Woodward-Wanger building at 1106 Spring Garden street, which was recently destroyed by fire. The new building will be ready for occupancy near the middle of December.

Modernly equipped throughout, this new building has been especially designed to provide means for the most efficient operation of the business of the company. The exterior of the building is designed in an attractive manner.

◆

Viking Pump Co. to Erect New Building

The Viking Pump Co., of Cedar Falls, Iowa, has announced plans for the erection of a new building to provide additional facilities for its business. The structure will be 52 x 152 ft., and of brick and steel construction.

◆

Has Taken Over Plant of Paramount Roof Flange Corporation

Announcement is made by Jack Flemm of the Flemm Lead Company, Inc., Long Island City, New York, that it has taken over the entire plant and equipment of the Paramount Roof Flange Corp., Edgemere, New Jersey.

◆

Pittsburgh Chapter Gives Theater Party

The Pittsburgh Chapter No. 9 of the National Association of Plumbing and Heating Salesmen held its December meeting in the form of a theater party at the Academy theater, on Friday evening, December 6.

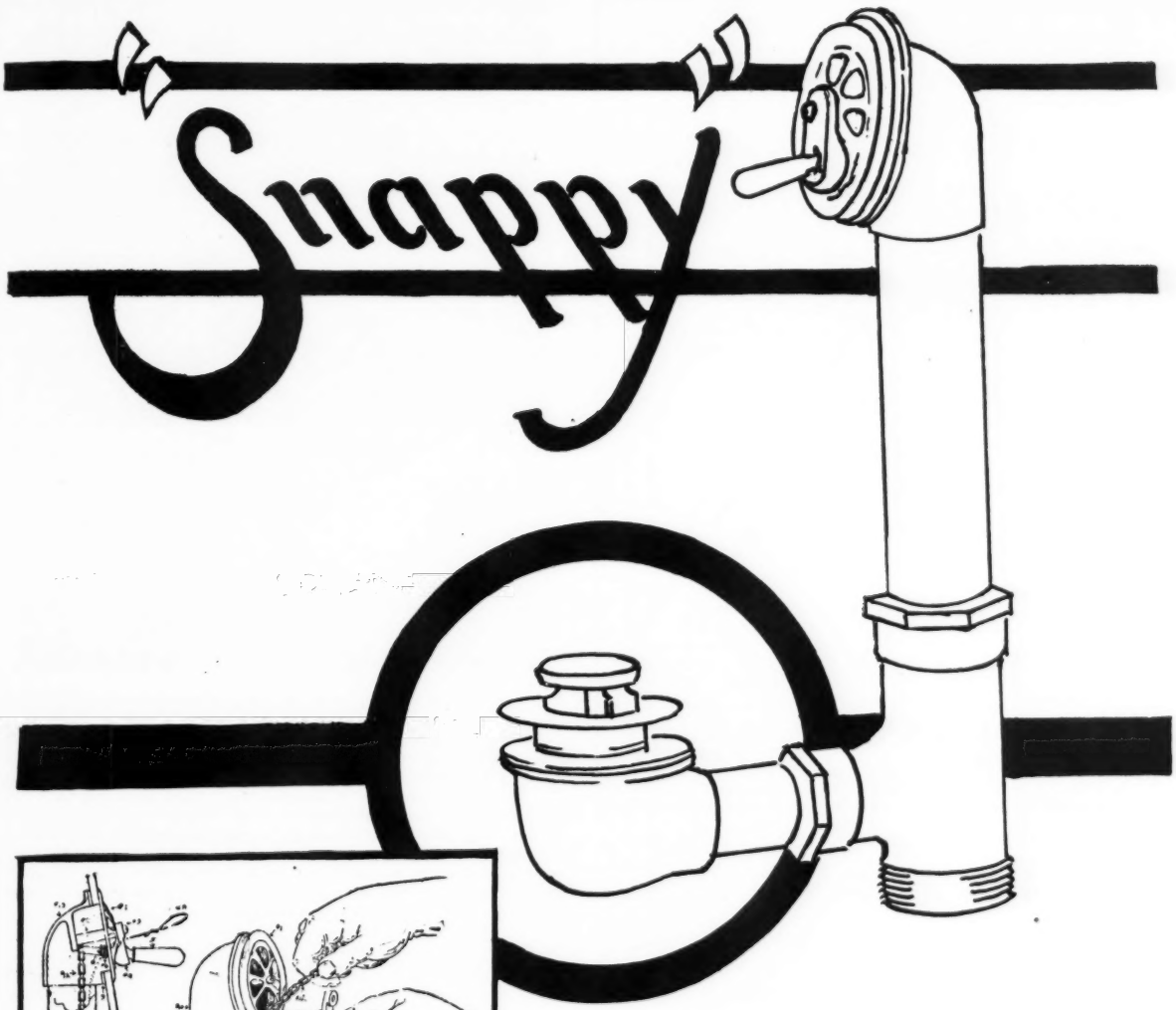
Personal Mention

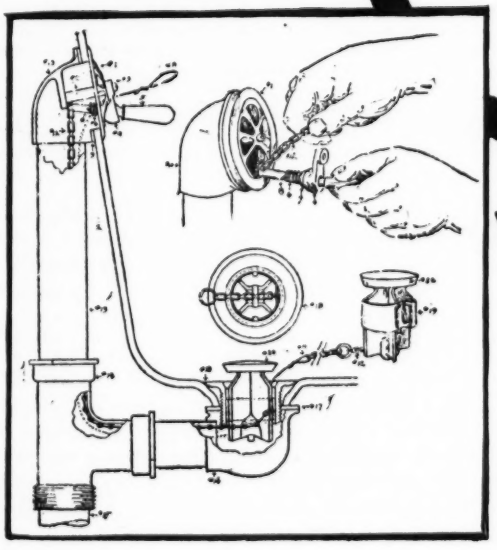
EDWARD MANVILLE, head of the Johns-Manville Corp., New York City, with Mrs. Manville, sailed on his new yacht, the Hi-Esmaro, November 28 from the Tebo Yacht Basin, Brooklyn, for a cruise in the Mediterranean and the North Sea. Mr. and Mrs. Manville expect to spend the Christmas holidays with their daughter and son-in-law, Countess and Count Folke Bernadotte of Sweden.

HARRY R. MYERS, previously associated with the American Radiator Co., New York City, as assistant general credit manager, and before that, manager of the Philadelphia branch of the Tomlinson Co., Inc., has recently been appointed general manager of the Central Supply Co., Worcester, Mass. Mr. Myers started his career with the American Radiator Co. at Chicago in 1906, and was with that company 15 years, until he resigned to accept the Philadelphia appointment, which he severed six years later to resume his association with the American Radiator Co.

PERRY S. MARKSVILLE, who has for the past 10 years been connected with the United Plumbers Supply Co., Inc., has been made vice-president of I. Greenbaum & Sons Co., Inc., New York City. This latter concern is the one with which Mr. Marksville began his career in the plumbing and heating

Snappy





WOLFF

"SNAPPY" POP-UP BATH DRAIN AND OVERFLOW is installed substantially the same as the ordinary connected drain and overflow—but—the objectionable exposed chain and stopper are eliminated. In their place a simple yet effective stopper is actuated by a concealed chain and lift lever.

The "SNAPPY" Drain is solidly constructed and will not get out of order. All working parts can be replaced or adjusted from the front so that a service panel is unnecessary.

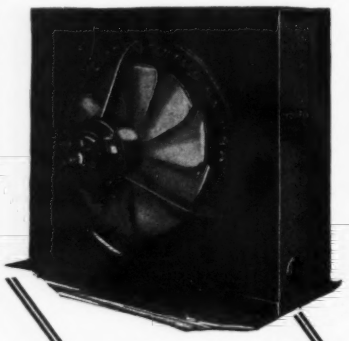
WOLFF CO.

"Superior Plumbing Fixtures"

CHICAGO

Branches and Distributors in all principal cities

SUPERIOR PLUMBING FIXTURES



If it's lower heating costs you want . . .

"Heat With Unit Heaters"

Hang this sturdy Buffalo "Breezo-Fin" Unit Heater anywhere from wall or ceiling, connect it to your steam and electric lines, and you will have HEAT when and where you want it. It is far more effective than direct radiation, easily controlled, easy to install anywhere, no fire hazard with low maintenance cost.

Complete descriptive literature furnished on request.

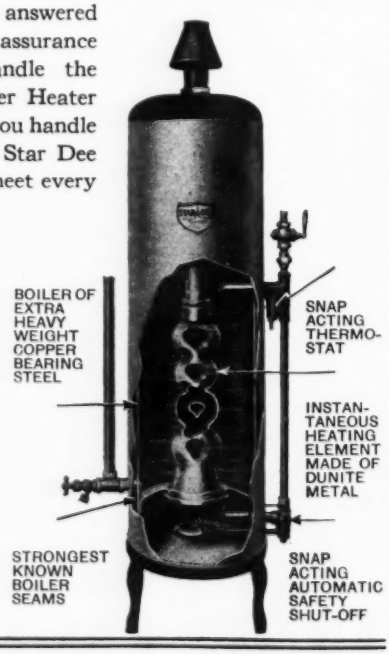
BUFFALO FORGE COMPANY
483 Broadway :: Buffalo, N. Y.
In Canada:
Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

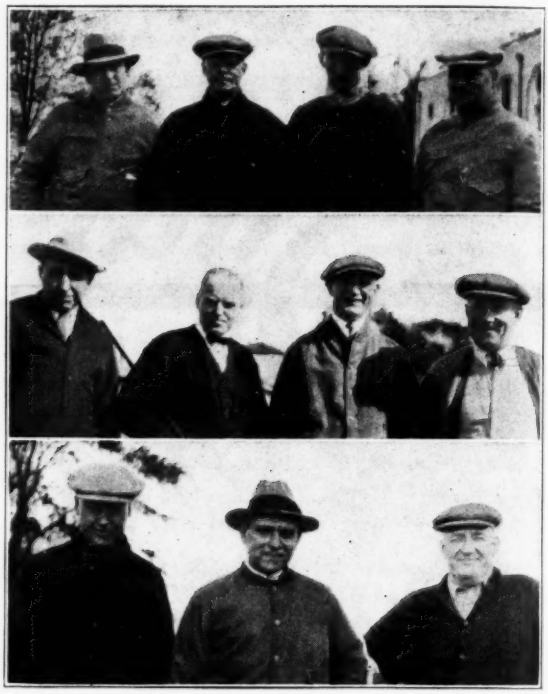
ANSWERS EVERY QUESTION

All your customers' questions about rapid heat, low fuel cost, thermostatic control, safety shut-off, trouble-free burner and dependable hot water can be answered with positive assurance when you handle the Star Dee Water Heater . . . and when you handle the *complete* Star Dee line, you can meet every demand for price as well as service.

Ask your jobber about Star Dee or write us direct.

STAR DEE WATER HEATER CORP.
Detroit, Mich.


BOILER OF EXTRA HEAVY WEIGHT COPPER BEARING STEEL
SNAP ACTING THERMO-STAT
INSTAN-TANEOUS HEATING ELEMENT MADE OF DUNITE METAL
STRONGEST KNOWN BOILER SEAMS
SNAP ACTING AUTOMATIC SAFETY SHUT-OFF



Top row: E. F. Conroy, J. S. Weaver, both of New York office of Central Tube Co.; Fred Korndorfer, S. C. Marx Co., New York City; Leo M. O'Neil, president of M. O'Neil Supply Co., of New York City. Middle row: C. R. Foster, New York manager of Iron City Sanitary Mfg. Co.; M. Ready, E. F. Keating Co., New York City; D. S. Warth, New York manager of C. F. Church Mfg. Co.; J. Francis Murphy, New York manager of Sloan Valve Co. Bottom row: H. N. Booth, New York manager of U. S. Radiator Corp.; G. W. Hamill, New York City manager of A. M. Byers Co.; L. S. Rothwell of Scovill Mfg. Co. Photos taken at the October meet of the Metropolitan Trade Golf Association

industries about twelve years ago, having gone with the former mentioned firm to become its secretary.

W. T. MAYFIELD, Birmingham, Ala., formerly connected with the Birmingham branch of Crane Co. for over 18 years, has been appointed southern representative of the Richmond Foundry & Mfg. Co., Inc., Richmond, Va. He will take up his new duties at once.

R. A. THORNE of Memphis, Tenn., has been appointed Southern representative for the Mueller Co., Decatur, Ill., covering the states of Arkansas, Mississippi, Tennessee and Louisiana, with headquarters at 664 Stonewall street, Memphis. Mr. Thorne succeeds J. L. BOYLE, who was transferred to the Western territory of the Mueller Co.

PROFESSOR F. E. GIESECKE, director, Engineering Experiment Station, Agricultural and Mechanical College of Texas, who left for a tour of European countries in September, is now in Berlin, having recently gone to that city from Denmark. He will visit Switzerland during December, and France and England during the early part of January, returning to the United States in time for the annual meeting of the American Society of Heating and Ventilating Engineers, to be held in Philadelphia the latter part of January, 1930. Professor Giesecke has been the guest of a number of European engineers

who have taken pains to acquaint him with some of their engineering achievements and laboratory research.

P. C. JACKSON has resigned as purchasing agent of the National Cast Iron Pipe Co., Birmingham, Ala., to become vice president of the Jefferson County Building and Loan Association. Mr. Jackson has been associated with the National Cast Iron Pipe Co. for more than ten years. He is succeeded by D. W. DAY, formerly assistant purchasing agent for the National Cast Iron Pipe Co.

P. J. MCGOLDRICK, Brookline, Mass., has been appointed as representative for the products of the Eastern Foundry Co., Boyertown, Pa., in the New England territory.

Convention Dates

January 13, 14 and 15, 1930—PRESIDENTS' AND SECRETARIES' CONFERENCE—The eighth annual conference of the presidents and secretaries of associations in the plumbing and heating industry, to be held at the Congress hotel, Chicago, Ill.

January 14 and 15, 1930.—SOUTH DAKOTA—The annual convention of the South Dakota Retail Plumbers' Association, to be held at Rapid City, South Dakota. Convention headquarters at Alex Johnson hotel.

January 14, 15 and 16, 1930—WISCONSIN—The annual convention of the Wisconsin Master Plumbers' Association, to be held in Milwaukee, with headquarters at the Hotel Schroeder.

January 21, 22 and 23, 1930.—ILLINOIS—The annual convention of the Illinois Master Plumbers' Association, to be held at Rockford with headquarters at the Hotel Faust.

January 27-30, 1930.—A. S. H. V. E.—The thirty-sixth annual meeting of the American Society of Heating and Ventilating Engineers to be held at Philadelphia, Pa.

February 3 and 4, 1930.—WEST VIRGINIA—The annual convention of the West Virginia State Association of Master Plumbers to be held at Clarksburg.

February 4, 5 and 6, 1930.—OHIO—The annual convention of the Ohio State Association of Master Plumbers to be held at Springfield.

March 10, 11 and 12, 1930.—INDIANA—The thirty-fourth annual convention of the Indiana Society of Sanitary Engineers, to be held at Fort Wayne.

March 17 and 18, 1930—MISSOURI—The annual convention of the Missouri State Association of Master Plumbers, to be held in St. Louis.

April 7 to 12, 1930.—AMERICAN OIL BURNER ASSOCIATION—The seventh annual convention and exposition of the American Oil Burner Association, to be held at the Stevens Hotel, Chicago, Ill.

May 5 and 6, 1930.—FLORIDA—The ninth annual convention of the Florida State Association of Master Plumbers and Heating Dealers, Inc., to be held at Bradenton.

May 12, 13, 14, 15 and 16, 1930—CALIFORNIA—The annual convention of the State Association of Master Plumbers of California, to be held at Sacramento. Convention headquarters will be at the Hotel Senator.

May 19, 20 and 21, 1930—PENNSYLVANIA—The annual convention of the Pennsylvania Master Plumbers' Association, to be held at the Bellevue-Stratford hotel, Philadelphia.

June 24, 25 and 26, 1930.—N. A. M. P.—The forty-eighth annual convention of the National Association of Master Plumbers, at Boston, Mass. Sessions at Grand Hall of Mechanics Building. Headquarters at Statler Hotel.

COMING TRADE EVENTS

January 13, 1930—The annual Milwaukee Apprenticeship Conference to be held at the Hotel Pfister, Milwaukee, Wis.

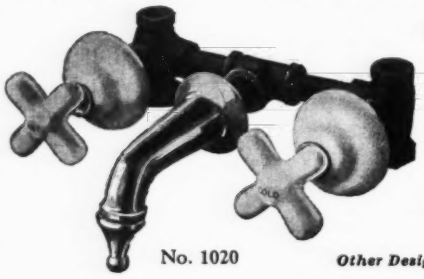
January 27, 28, 29, 30 and 31, 1930.—The International Heating and Ventilating Exposition, to be held at the Commercial Museum, Philadelphia, Pa.

March 3-7, 1930.—The first showing of the National Industrial Exposition, to be held at the Hotel Stevens, Chicago.

June 23-27, 1930.—Exposition in connection with the annual convention of the National Association of Master Plumbers, in the Mechanics Building, Boston, Mass.

COUPLING FIG 1002 C
for
COPPER TUBE PLUMBING
only 3 FITTINGS
TEE
UNION FIG 1001 C
ANDERSON COUPLINGS
In this drawing, showing typical joints in a Copper Tube Plumbing Installation, it is easy to note that only Three different type Anderson Couplings are necessary for the entire job.
Save money—save time—do better work. Sell Copper Tube Plumbing and Anderson Couplings.
Write us for catalogue.
UNION FIG 1001 C
TEE
COUPLING FIG 1002 C
TEE
UNION FIG 1001 C
THE CHAPMAN VALVE MANUFACTURING CO.
INDIAN ORCHARD - MASS.

American Over-Rim Fillers



Well Constructed — Full Waterway — Attractive Appearing — Nickel or Chromium Finish

No. 1020 *Other Designs. Write Us.*

American Sanitary Mfg. Co. : ABINGDON ILLINOIS

Two New Hoffman Products

HOFFMAN—ECONOMY PUMPS
Vacuum and condensation—for all types of heating installations.

HOFFMAN MOTO-HEATERS
An improved type of unit heater, in suspended and floor mounted types.

Write for catalogues

HOFFMAN SPECIALTY COMPANY, Inc.
Dept. X-28, Waterbury, Conn.

HOFFMAN VALVES : HOFFMAN CONTROLLED HEAT

SANI-TEED PLUMBING PRODUCTS

Ratchet Test Plugs

Here is a Test Plug that is easy to use in tight places due to its ratchet arrangement. It requires no trouble to put it into place and you are always certain of a real test.

J. A. ZURN MFG. CO., Erie, Pa.

Everything for
OXWELDING
and
CUTTING

LINDE OXYGEN
The Linde Air Products Company

Prest-O-Lite
Dissolved Acetylene
The Prest-O-Lite Co., Inc.

Oxweld
Apparatus and Supplies
Oxweld Acetylene Company

UNION CARBIDE
Union Carbide Sales Company

Units of
UNION CARBIDE AND CARBON CORPORATION
General Offices UCC *Sales Offices*
30 East 42nd Street, New York, N. Y. In principal cities of the country

Drinking Water Systems

(Continued from Page 50)

ing machine rated at this capacity or higher by the manufacturer. If the total hours per day in which the system is used are ten then the total B.t.u. extraction per day would be $3735 \times 10 = 37{,}350$ B.t.u. and a machine could be selected that would operate continually throughout the ten hours if necessary as the machine would rest the balance of the 24 hours or for 14 hours off and ten hours on.

Machine Should Not Operate More than 2/3 of Time

No machine should be selected that will require operation more than 16 hours out of the 24, for such an installation would have a short life. If the above system is to operate full 24 hours a day then our requirements would be,

$3735 \times 24 = 89{,}640$ B.t.u.

but the machine would have to be large enough to extract this amount of heat in not more than 16 hours. The rating for the machine and for the cooler must then be,

$89{,}640 \div 16 = 5602.5$ B.t.u. per hour.

Pipe Line Heat Absorption Losses

If a circulating job or a dead end job is to be installed a still larger refrigerating machine and cooler will be required. This is because in addition to the heat extracted from the water it is also necessary to compensate for the heat losses in the refrigerated water supply line, branches and return line.

These will depend upon the size of the pipe, and the number of lineal feet of pipe and upon the kind and amount of insulation used. As cork is considered to be one of the best insulators for refrigeration piping, the following table is given to show the thermal losses per lineal foot of pipe, in sizes from

Table II

BARE PIPE

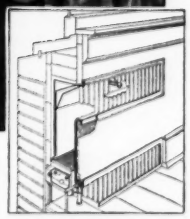
Pipe Size, Inches	Trans. in B. t. u. per Lineal Foot per Degree F. Dif. in Temp. for	
	1 Hour	24 Hours
¾	.581	14.0
1	.698	16.7
1¼	.856	20.5
1½	.960	23.0
2	1.16	28.0

¾ inch to 2 inch for each degree Fahrenheit differential, in one hour and in twenty-four hours.

Please note that Tables II, III and IV show the losses when the pipe is uncovered and when it is insulated with cork 1 inch thick and with cork 2 inches thick.

If we consider that instead of using either individual coolers, or a multiple hook-up, on our proposed installation, we are to use a circulating job,

WHY ARE RADIATORS OUT-OF-DATE?



Sectional view of Trane Concealed Heater installation. No fussing or special fitting is required on the job.

NEVER in style, never completely at home in otherwise beautifully arranged rooms, radiators may now join the other relics of the past, for Trane perfected Concealed Heating has made them obsolete . . . Trane Concealed Heaters produce more comfortable warmth than radiators, and are noticeably more economical in operation. Control is instantaneous . . . The copper heating element is easily and quickly installed between standard width walls, a one-man job. It may be inspected at any time without disturbing the wall . . . Trane Concealed Heaters cost a little more than ordinary cast iron radiation, an extremely small extra cost for the increased comfort and greatly improved convenience enjoyed by the owner. Concealed Heaters supersede radiators in steam, vapor or hot water systems. Installed with a complete Trane Vapor System, they provide convenient, economical, reliable warmth in the most modern manner. Mail the coupon for bulletin.

HEAT CABINETS **TRANE** CONCEALED HEATERS
PUMPS, UNIT HEATERS, AND HEATING SPECIALTIES

THE TRANE COMPANY *(Established 1885)*
Dept. 12, 204 Cameron Ave., La Crosse, Wis.
Send bulletin on Trane Concealed Heating.

Name.....
Address.....
City..... State.....

A product succeeds only because of its worth. This worth must be shown constant over a long period. This institution has been manufacturing sanitary ware that daily proves itself, since nineteen hundred and seven.

FORDS PORCELAIN WORKS

PERTH AMBOY, NEW JERSEY

MANUFACTURERS OF SANITARY WARE

we arrive at the following solution. Our problem is to cool 15 gallons of water per hour from 80 degrees Fahr. to 50 degrees Fahr. and this water is to be circulated through 200 ft. of ¾ inch pipe covered with 2-inch cork. By referring to Table IV we note that ¾-inch pipe covered with 2-inch cork has a loss of 2.87 B.t.u. per degree difference in temperature per lineal foot. Therefore $200 \times 2.87 \times 30 = 17{,}220$ B.t.u. is the thermal loss which must be added to our original B.t.u. extraction necessary to cool the water used and wasted. The sum total will give the neces-

Table III

CORK 1-INCH THICK

Pipe Size, Inches	Trans. in B. t. u. per Lineal Foot per Degree F. Dif. in Temp. for	
	1 Hour	24 Hours
¾	.140	3.37
1	.152	3.64
1¼	.173	4.15
1½	.187	4.50
2	.216	5.20

sary capacity of the refrigerating machinery and water cooler.

If only 1-inch cork is used, referring to Table III, the figures would be $200 \times 3.37 \times 30 = 20{,}220$ B.t.u. in thermal loss, while if the pipe were bare, referring to Table II, the figures would be $200 \times 14 \times 30 = 84{,}000$ B.t.u. in thermal loss in 24 hours, which would be equal in losses to the energy required to cool the water.

These figures are based upon circulating the water continuously or 24 hours per day. If it seems advisable to shut off the circulating pump for a por-

Table IV

CORK 2-INCH THICK

Pipe Size, Inches	Trans. in B. t. u. per Lineal Foot per Degree F. Dif. in Temp. for	
	1 Hour	24 Hours
¾	.12	2.87
1	.129	3.11
1¼	.135	3.22
1½	.138	3.32
2	.158	3.80

tion of the time, then use the factor shown under 1 hour and multiply by the number of hours the pump will operate to get the final multiplier.

Good Insulating Material Important

A study of this will show the extreme importance of good insulating material, if the job is to operate efficiently and economically. If a dead end system is to be used, the same procedure is followed except

STRAIGHT and RIGID

That's how you can hang your radiators with the

McAlear Universal Radiator Hanger

Requiring only one wall bolt —
Completely adjustable —
Heavily constructed —
You can cut your labor cost with the "McAlear Universal."

For any standard tube or wall radiation.

Submit your list today for quantity prices.

CHICAGO THE McALEAR MFG. CO. ILLINOIS

Agents in Principal Cities 1901 South Western Avenue

Electric Wands QUALITY WATER HEATER

MANUAL CONTROL SIDE ARM HEATER

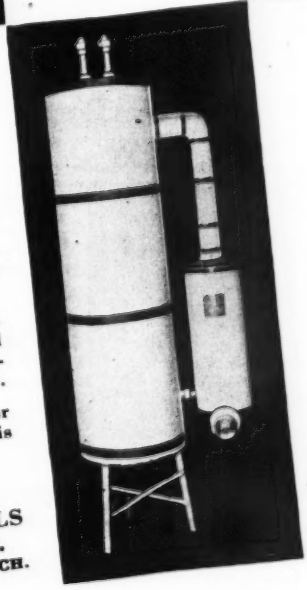
Built to attach to a range boiler. Can be put in batteries for large requirements.

FOR COUNTRY HOMES AND SUMMER COTTAGES

Electric water heaters supply hot water to these isolated dwellings better than anything else.

The supply is constant and plentiful and the convenience is unbeatable.

Build up a better business with this heater.



D. D. WESSELS & SONS CO.
DETROIT MICH.

Stop this!

Eliminate those unexpected "shots" of hot and cold water in shower baths. Stop the time wasted in trying to get water at the right temperature. Install Powers Mixers. Write for 20-page book.

THE POWERS REGULATOR CO.
2716 Greenview Ave., Chicago
Offices in 37 Cities

with The POWERS SHOWER MIXER

MADDOCK'S

3 high quality toilets means
3 opportunities for profit in
3 different price classes

The Madera at $85, the Madbrook at $50, and the Maderno at $35. Thos. Maddock's Sons Pottery, Division of Standard Sanitary Manufacturing Company, Trenton, N. J.

Genuine Mueller

BRASS PIPE AND FITTINGS

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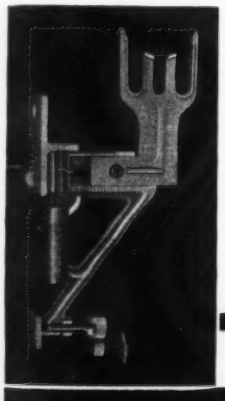

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that with ¼-inch pipe and ⅜-inch pipe the losses per lineal foot per degree difference in temperature are as follows for one hour when bare and when covered with cork:

Bare Pipe	¼-in. = .34 B. t. u.	⅜-in. = .406 B. t. u.
1-in. Cork	¼-in. = .101 B. t. u.	⅜-in. = .114 B. t. u.
2-in. Cork	¼-in. = .088 B. t. u.	⅜-in. = .098 B. t. u.

Some manufacturers rate the capacity of their machines in terms of "Melting Ice Equivalent" (M.I.E.) instead of B.t.u. When this is done it can easily be converted into B.t.u. by multiplying the pounds of M.I.E. by 144 as each pound of melting ice absorbs 144 B.t.u. Therefore if a machine is rated at 50 pounds of M.I.E. per hour the B.t.u. would be $144 \times 50 = 7{,}200$ B.t.u. per hour.

In addition to the above calculations it is necessary in every circulating job to compute the size of the circulating pump to install for a given job.

In such jobs it is quite necessary to keep the water constantly moving to prevent an appreciable rise in temperature. The maximum temperature difference between water leaving the cooler and that returning should not exceed 5 degrees Fahr. For this reason a definite flow of water must be maintained. The following table gives the number of gallons of water that must be pumped for every 100 ft. of piping in the circulating system, but does not include the amount of water used and wasted, which amount must be added to that shown in the table to arrive at the required capacity of the circulating pump.

Table V

Room Temperature.....	70° F.	80° F.	90° F.
Drinking Water Temperature	50° F.	50° F.	50° F.
Differential	20° F.	30° F.	40° F.
	*13 gal.	*19 gal.	*25 gal.

*The amount indicated in gallons is the amount to be pumped for every 100 ft. of circulating line.

As indicated earlier in this article the circulating pipe should be large enough to reduce the frictional resistance so that the minimum size circulating pump and motor may be used. The maximum velocity should not exceed 180 ft. per minute or 3 ft. per second.

You will remember that while it is not necessary to consider a gravity head when using a two pipe closed system as shown in Fig. 3 it is necessary to consider the frictional resistance in the circulating pipe and also in the water coils in the cooler.

The following table will give the loss in head due to the friction of water in pipe for each 100 ft. of smooth straight pipe. When slightly rough add 15 per cent and when very rough add 30 per cent. Every 90-degree ell is equal to 3 ft. of pipe. Vel.=Velocity; Fric.=Friction.

Referring to our problem you will note that we will need 15 gallons of water used and wasted per hour. This to be cooled from 80 degrees Fahr. to 50

degrees Fahr. and circulated through 200 feet of pipe which we will assume has six 90 degree elbows. We will also assume that the room temperature will be a maximum of 80 degrees Fahr.

Table VI
Friction of Water in 100 Ft. of Smooth Straight Pipe

Gals. per Minute	½" Pipe		¾" Pipe		1" Pipe		1¼" Pipe		1½" Pipe		2" Pipe	
	Vel.	Fric.	Vel.	Fric.	Vel.	Fric.	Vel.	Fric.	Vel.	Fric.	Vel.	Fric.
2	2.10	5.30	1.20	1.40								
3	3.16	11.30	1.80	2.90	1.12	0.90						
4	4.21	19.20	2.41	5.00	1.49	1.52	0.86	0.40	0.63	0.187		
5	5.26	29.00	3.01	7.50	1.86	2.32	1.07	0.60	0.79	0.283	0.51	0.09
10	10.52	105.00	6.02	27.10	3.72	8.40	2.14	2.18	1.57	1.02	1.02	0.36
15			9.02	57.00	6.13	18.90	3.92	4.65	2.72	2.25	1.53	0.81
20			12.03	97.00	7.44	30.10	4.29	7.90	3.15	3.70	2.04	1.29
25					9.30	45.50	5.36	11.90	4.56	5.60	2.55	1.96

Referring to Table V you will note this requires 19 gallons of water for each 100 ft. of pipe; as we have 200 ft. of pipe this requires 2×19=38 gallons to be circulated, plus the amount used and wasted= 15 gallons, total to be pumped per hour 53 gallons or about one gallon per minute. The load under which the pump would operate is arrived at as follows:

Referring to Table VI you will note that ¾-inch pipe is sufficiently large for this job and well within the maximum velocity allowed of 3 ft. per second. Friction head of 200 ft. of pipe plus six 90-degree elbows is equal to 218 ft. of pipe or 2.18×1.4=3.05
30 per cent added for rough pipe equal..... .91

or a total of.....3.96 ft.

To this amount we must refer to the catalog of the water cooler manufacturer to find the friction head in the water coil. If this is not available and the total length and size of the coil is known the friction head can be calculated as shown above, or it can be looked up in a frictional resistance table. If we assume that this additional resistance is .4 we have a total head of 3.96 plus .4=4.36 feet. Therefore the circulating pump must have a capacity of one gallon of water per minute operating under a head 4.36 ft. of water. For continuous operation it is advisable to specify the motor and pump oversized allowing 100 per cent overload. This will meet unexpected demands which cannot be predicted.

◆

Air Conditioning Defined

Air conditioning has been defined as the science of mechanically controlling the temperature, the humidity, the purity and the movement of the air within buildings and other enclosures. Actually the supreme purpose of complete air conditioning is the control of the effects of such air upon the persons and materials with which it comes in contact. Ordinarily we do not consider mere heating as air conditioning.

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THE TRADE

NEWS FOR PLUMBING AND HEATING CONTRACTORS

California Association Sets Convention Date

The State Association of Master Plumbers of California has set May 12, 13, 14, 15 and 16, 1930 as the time for its annual convention. Sacramento has been chosen as the convention city, and headquarters will be at the Hotel Senator. The local Sacramento convention committee is headed by J. B. Hawley, 3126 J. street, Sacramento.

◆

North Carolina Association Holds District Meeting

The North Carolina Association of Plumbing and Heating Contractors held a district meeting in the ballroom of Hotel Albemarle in Albemarle, N. C., with approximately 75 delegates from Western North Carolina present. The meeting, which was in charge of President H. S. Ritchie, was addressed by Leon Lawrence, president of the North Carolina Heating and Plumbing Educational Bureau, Charlotte, and A. C. Honeycutt of Albemarle.

◆

Albany Association Elects Officers

The Master Plumbers' Association of Albany, N. Y., held its annual election of officers on December 3, afterward turning the meeting into a social gathering, during which time retiring President J. O. Stapf was presented with a traveling bag so that he would have no excuse for not attending the state and national conventions.

The new officers are Andrew Ryan, president; Clarence Keeshan, vice president; J. Matthew de Rouville, secretary; Joseph Nicklas, treasurer; C. Arthur Keller, sergeant at arms; Martin Farrell, J. R. Paeglow, E. J. Daley, Richard Fay, Peter Rubenstein and H. C. Whitbeck, trustees.

◆

Affiliate With Pennsylvania Association

The master plumbers of New Castle, Pa., during a recent meeting at the Castleton hotel, voted to affiliate with the Pennsylvania Association of Master Plumbers.

During the meeting, addresses were made by David Sanderson, president of the state association; James Rhoads, secretary and treasurer; and by Joseph Hildebrand, field representative.

◆

Elects New Officers

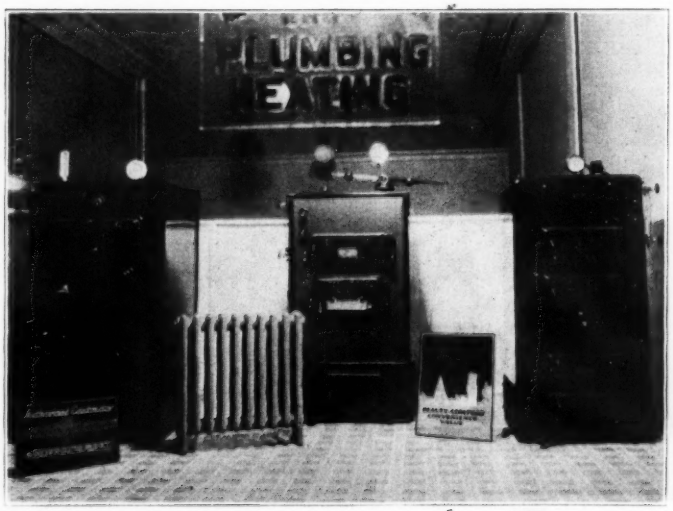
The Master Plumbers' Association of Norwich, Conn., recently held its annual election of officers. Harold C. Dahl was elected president; J. A. Fitzgerald, vice president; William J. Haggerty, financial secretary; George Blum, recording secretary; and Thomas F. Burns, treasurer. P. J. McMahon, John Morton and J. J. Shugrue were elected to the board of trustees.

◆

District of Columbia Masters to Honor A. R. McGonegal

The Master Plumbers' Association of the District of Columbia, Washington, D. C., has arranged a testimonial dinner at the Wardman Park hotel, for Feb-

Attractive Display Window in Duluth, Minn.



THE picture at the left shows the attractive display window maintained by Skantz Bros., at 1906 W. Superior street, Duluth, Minn. On display are three heating boilers, all of different colors. These boilers are set back far enough in the window so that a background may be placed in front of them and other goods displayed.

ruary 20, 1930, in honor of A. R. McGonegal, chief plumbing inspector of the District of Columbia, president of the American Society of Sanitary Engineers and an honorary member of the local association.

The dinner is apropos of Mr. McGonegal's elevation to the highest office in his profession and in recognition of his many years of service to the industry throughout the country. The committee in charge of the arrangements is composed of Harry A. Scroggins, chairman; Thomas E. Clark, vice chairman; Joseph A. Heffron and Frank Bentley, treasurer and secretary, respectively, of the District of Columbia association. In addition to representatives of the plumbing and heating industry, officials of the District and of the United States government, will be guests at the dinner.

Why Annual Conventions?

By JOHN A. QUINN

Master Plumbers, in common with other professional groups, doctors, lawyers, educators and forward-looking business men, gather in annual convention for mutual profit, and for the advancement of professional interests. The opportunity for an interchange of views, comparison of methods and for the development of new ideas in the scientific installation of plumbing, for a co-ordination of the principles and practices of association administration is best developed at the annual conventions attended by large numbers of master plumbers. The associations they represent, as well as the delegates, can be and generally are benefitted to a far greater extent, than the time and money expended in attendance at these conventions.

Aside from educational value, which is always prominent, is the opportunity for the forming of social and professional friendships that are lasting, and in the pleasures of these new contacts, the cobwebs that gather round the methods of routine and monotonous association administration are wiped away and new purposes, new ideals and new inspirations are created with these new friendships. Contacts of enduring value result. This is true, not merely in the friendships established with other master plumbers and officers, but in the friendships established with the people, wholesalers, manufacturers and salesmen with whom we come into daily commercial contact. The opportunity to meet and cultivate the interest of manufacturers and wholesalers of supplies and equipment that we are constantly using, and to form lasting business connections, is in itself unique.

Association officers gain a new perspective of their job at our annual conventions, a perspective that is very necessary to the exercise of sound judgment in their administrative affairs. The discussions on the many questions before the convention are especially valuable in the exchange of ideas concerning practices and policies. Through these discussions new horizons of thought widen. To the executive who wrestles with the perplexing details peculiar to the plumbing industry, the interplay of co-operative minds as these details are discussed, is stimulating.

Through these discussions, it becomes possible to separate the chaff of unimportant ideas and the unsound proposals from the wheat of enduring principles and policies of permanent worth.

A convention then, is a period of work and study, of recreation and play, of friendly contacts with professional and business colleagues. It is a post graduate school of applied science which brings to the master plumber all that is good in the old and much that is of value that is new.

◆

Calgary Association Holds Party

The Calgary Association of Sanitary and Heating Engineers of Calgary, Alta., recently held a very successful social gathering in the upper floor of the Campbell &

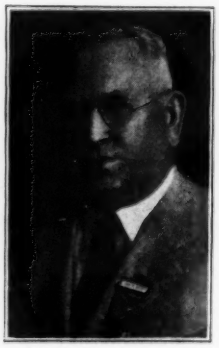
Members of the Scholarship Committee, N. A. M. P.

Samuel F. Wilson

James S. Cassedy

Frank J. Fee

John A. Quinn



John J. Vogelpohl

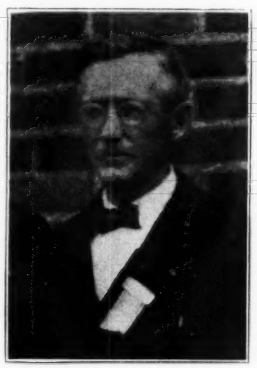
Hillier company's new establishment. A whist party engaged the guests during the first part of the evening and, during the latter part of the evening, until midnight, dancing was in order. Prizes for the whist game winners were awarded to Miss Ives, Mrs. D. Burges and Mrs. George Fitzgerald; and, for the men, W. B. Trotter, Mr. Whistlecroft and Mr. Britton were the victors. The committee in charge of arrangements was composed of George Fitzgerald, J. Marr, Jr., J. H. Hay, T. Nichol and H. Morton.

◆

Missouri Association Directors Meet

The board of directors of the Missouri State Association of Master Plumbers held a meeting on November 30, at the Lenox hotel, St. Louis, with the entire directorship present, as well as several representatives of the St. Louis local association. F. J. Praechter presided.

After discussing recent and future activities of the association, the directors voted to accept the invitation



William R. Dunlap

J. S. Levene

of the St. Louis association, extended through President Finn, to hold the state convention in that city. The date set for the 1930 convention was March 17 and 18, and the board of directors will meet on March 16, the day before the convention.

W. R. Dunlap, Kansas City, Mo., is president of the Missouri state association, and J. S. Levene, also of Kansas City, is secretary.

◆

To Install New Officers

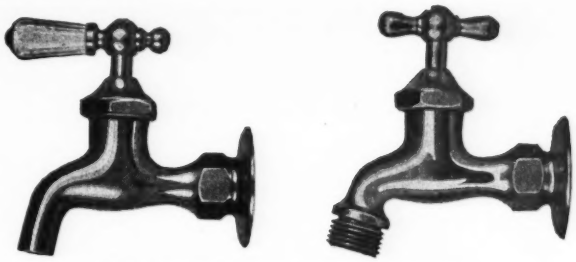
The Master Plumbers' Association of North Hudson, N. J., will conduct its installation of officers at a dinner to be given on January 11, 1930, at the Elks club, Hudson boulevard and 32nd street, Union City, N. J.

◆

California Inspectors Meet

The Plumbing Inspectors' Association of Southern California held its regular monthly meeting in Pasadena on November 27. The executive committee recommended that several changes be made in the constitution, one of which was the removal of the word Southern from the name of the association, which was approved by the members.

Secretary Stephen I. Smoot read a paper containing the following recommendations: "That the research com-



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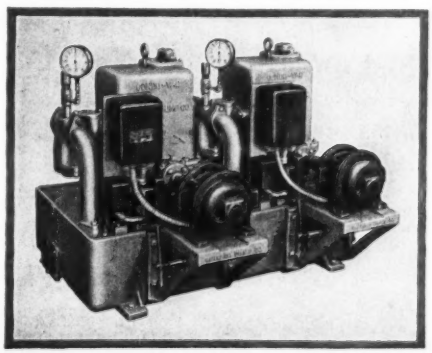

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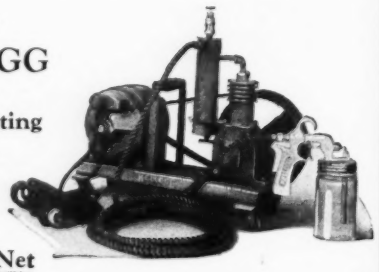

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mittee establish a laboratory to carry on experimental work, and make tests for the establishment of rules for waste and soil lines, vent lines and other parts of sanitary systems. That an official testing bureau be inaugurated, and that official seals be placed on appliances and materials that meet the requirements of the test. And that proper publicity be given all promotional, educational and research work."

◆

South Dakota Convention to be Held in Rapid City

The South Dakota Retail Plumbers' Association has arranged to hold its 1930 convention in Rapid City, South Dakota, on January 14 and 15. The convention headquarters will be maintained at the Alex Johnson hotel. Anthony Traut of Rapid City is president of the South Dakota association,

Anthony Traut

Clifford F. Smith

and Clifford F. Smith, Sioux Falls, is secretary.

In conjunction with the convention of the South Dakota association there will be meetings of the South Dakota General Contractors' Association, the South Dakota Engineering & Architects' Society, and the South Dakota Society for Promotion of Engineering Education. These organizations will hold both separate and joint sessions.

◆

Presidents' and Secretaries' Conference to be Held in Chicago

The Presidents' and Secretaries' eighth annual conference, to be held January 13, 14 and 15, 1930, at the Congress hotel, Chicago, although primarily for presidents and secretaries of the national, state and local associations in the plumbing and heating industries, will open its meetings to members of these organizations as well as to their officials. Group conferences will be held for the officials of master plumbers' and heating contractors' associations.

◆

Elects Officers for 1930

The Master Plumbers' Association of North Hudson, N. J., announces the election of the following officers for the 1930 season: George Buess, president, Union City; Vincent Farrelly, vice president, Woodcliff; J. C. Westervelt, treasurer, also of Woodcliff; O. Viehweg, financial secretary, and W. H. Dyer, recording secretary, both of Weehawken; and A. Fierer, sergeant at arms, Union City.

The annual banquet and installation of officers will be held at the Elks club in Union City, January 11, 1930.

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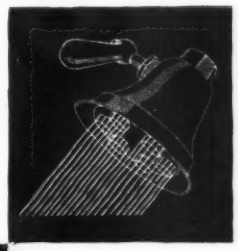
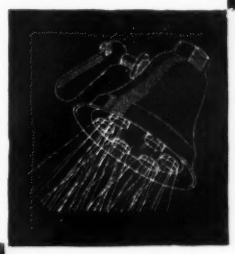
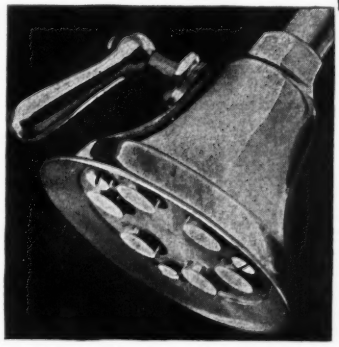
1 Flushes its water openings *clean*

2 Gives any kind of stream desired



And it fits *any* make of shower





K-3395 Patent Applied for

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Goodbye to the bother of taking a shower head apart for cleaning. Goodbye to stopped up water openings. For the Speakman Self-Cleaning Head flushes itself clean with a turn of a lever! By turning this same lever you may vary the size of the water openings so as to give any kind of a stream desired. A single heavy stream...a normal spray...or a prickly, blood-tingling needle shower—this astonishing head gives them all.

The workmanship is as fine and flawless as you would expect from the Speakman plant. Every part is machined to pin point accuracy.

And this revolutionary Speakman Shower Head is finished in superb chromium plate and keeps its brilliancy and sparkle indefinitely. It can be installed on either a Speakman shower *or on any other make of shower*. Every one of your customers is a prospect. Ask your jobber.

◆ ◆ ◆

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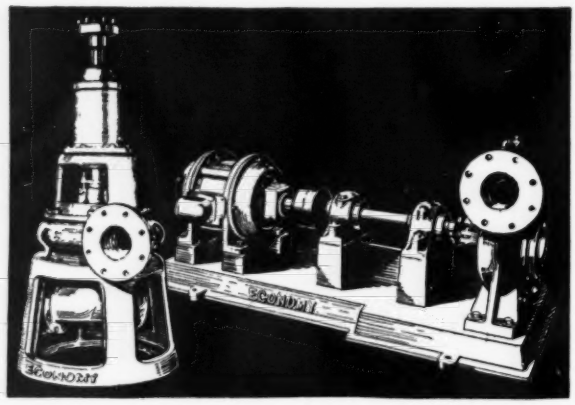

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New Jersey Association Supports President Hoover's Program

The following letter is being sent out by August C. Krieger, president of the New Jersey State Association of Master Plumbers, to members of the local associations, in regard to supporting the program of President Hoover on the subject of building construction.

"To the Members of Local Associations:
"Dear Sir:

President's Program

"The President of the United States has received additional encouragement from various quarters today for his program of ending pessimism, stimulating business and providing for the formation of a permanent business council to keep trade and industry stabilized.

President's Assurance

"The President was assured that contract prices would not be increased if wages were not increased and that with labor and producers agreeing to retain the present wage scales, the construction companies would be able to extend their operations with every assurance of keeping prices down to 1929 levels. This they said, would assure steady employment in most of the building trades and would tend to keep the production of building materials active next year.

American Federation of Labor

"Representatives of the federation expressed their individual and collective opinion that it would be unwise to aggravate the situation by demanding increases in wages for the immediate present. The basis of such opinion is clear and well understood.

"Labor has learned from experience that movements for special increases in wages cannot be successfully launched at a time when the nation has sustained a severe shock as a result of the destruction of billions of dollars in values, resulting in curtailment of the buying power of millions of victims who lost all they possessed.

State Association

"What can our state association do to help stimulate the spirit of the President of the United States in this national movement?

Local Associations

"What can your local association do to help stimulate the spirit of the President of the United States —in your home city?

National Association

"Do you believe it advisable to instruct our national president—to participate in the program—as explained by the President of the United States?

State President

"It is the belief of this office that with the proper co-operation, this program will have a tendency to counteract any uneasiness in our industry and particularly in our respective communities."

Letter to the Editor

A Message to Non-Members of H. & P. C. N. A.

The following message, which is being sent to heating and piping contractors who are not members of the Heating and Piping Contractors National Association, will interest a great many of our readers.—Editor's Note.

Editor, DOMESTIC ENGINEERING:—This association is the recognized leader in the heating industry, first because of its original pioneering efforts to learn more of the industry's problems; second, because of the accomplishments of today in meeting those problems; and, third, because of its guarantee of earnest effort for the future to meet the ever-changing conditions in the piping industry. It is always responsive to public need and outstanding in the support of the heating and piping industry.

Do you think it possible that any association in existence for the past forty years could have survived and grown as this one has, if it were not doing a real public service? A great service of this kind could only be brought about through the hard work and earnest efforts of the members of the Heating and Piping Contractors Association, and these members are still carrying on their educational program.

Don't you non-members want to help this work along? Surely you must be interested in the industry from which you receive your income.

In these days of mergers, don't you think that you should merge your efforts with the efforts of this association that is protecting your business as well as educating those in the heating and piping industry?

You owe it to yourself and to your industry to become an active part in this national movement to build up our association, so that you and we may be in a better position to render a national service, and supply a public demand for high class heating and piping installations. If a merging of interests in other lines is good, so must a merging of ours be good. We are asking you to join with us and become an active factor in our program. We need your support as a member, and you must realize that you need our support as an association. If you will join now, write just a note to the Heating and Piping Contractors National Association, 50 Union Square, New York City. They will promptly and gladly send you application blank for your signature, and also furnish you with any additional information which you may desire.

(Signed) W. G. Fraser,
Buffalo, N. Y.
Chairman Membership Committee Zone No. 2.

◆

Review Partial Payment Plan

Master plumbers in the Oakland district of California have recently gone into the subject of the time payment plan, its advantages and methods of operation. It develops that the majority of the merchant plumbers in this area make use of the services of finance companies. The finance company's carrying charge is then added to the cost of the job. Usually the contractor asks for a one-third down payment,

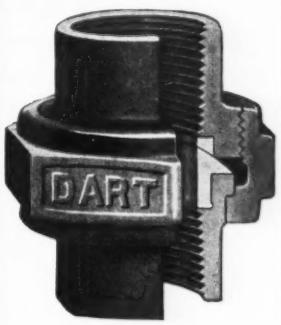
DART
UNIONS
2-BRONZE SEATS-2

Two Bronze Seats in Dart Unions give perfect leak-proof joints.

The extra heavy nut and shoulders give strength.

Use Dart Unions.

E. M. DART MFG. CO.
Providence, R. I.
The Fairbanks Company, Sales Agents
Canadian Factory, Dart Union Company, Ltd., Toronto, Canada



Merry Xmas

The Novelty Steam Boiler Works Co.
Clare and Kloman Sts., Baltimore, Md.

Mfrs. of

ARROW Steel Tanks
TRADE MARK

All Lead-Copper-Galvanized Iron

SIMPLEX AND JUNIOR FLASHINGS FOR EVERY ROOF CAN BE HAD IN EACH OF THE ABOVE METALS.

Write for prices and full information on the easily installed, durable SIMPLEX and JUNIOR Flashings.

SIMPLEX MFG. CO.
2644 N. Ashland Avenue
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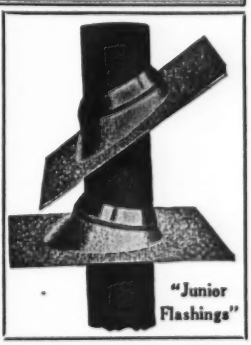
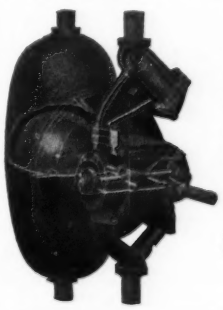

"Junior Flashings"

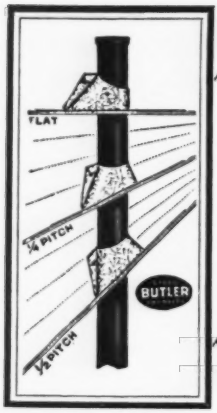
Protection without Compromise



THERE are no "if's" and "but's" about the new M & M Self-Cleaning Duplex Feeder. It keeps the boiler water line where it belongs at all times, under all conditions. The self-cleaning valves stay new even in the hardest water. It makes good your guaranty on every installation. The new booklet tells why. Your copy is ready.

McDONNELL & MILLER
400 N. Michigan Ave. Chicago

McDONNELL & MILLER
Self-Cleaning
DUPLEX FEEDER



OVERTON

Here's an air and water tight roof flashing that fits any angle roof from flat to half pitch.

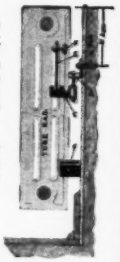
And it fits them in the shortest possible time for the longest possible service. Makes the roof look better, too.

BUTLER MFG. COMPANY
Minneapolis, Minnesota

An Easy Solution of One of Your Problems

Your problem of hung radiation may now be solved easily and inexpensively. For the E-Z Line of Hangers, complete with styles "H" and "R" and the new style "C," is suitable for all wall and tube type radiators. Your trade will welcome this information.

Adjustable to horizontal and vertical positions. No need for accurate measurements of anchor bolts. No obstruction back of radiator. Hanger out of sight. Adapted to any wall material. Endorsed by architects and contractors.



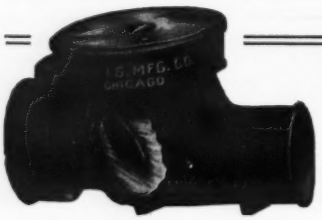
Style "C"

EZ RADIATOR HANGER

HEALY-RUFF COMPANY
794 Hampden Ave. St. Paul, Minn

Also Manufacturers of

EZ INSERT



Wade Accessible Drains

Think of all the valuable basement space that isn't being utilized simply because people do not know that Wade "Accessible" Back Water Valves permanently prevent the damage and inconvenience caused by flooded basements.

Tell them about Wade —they'll buy.

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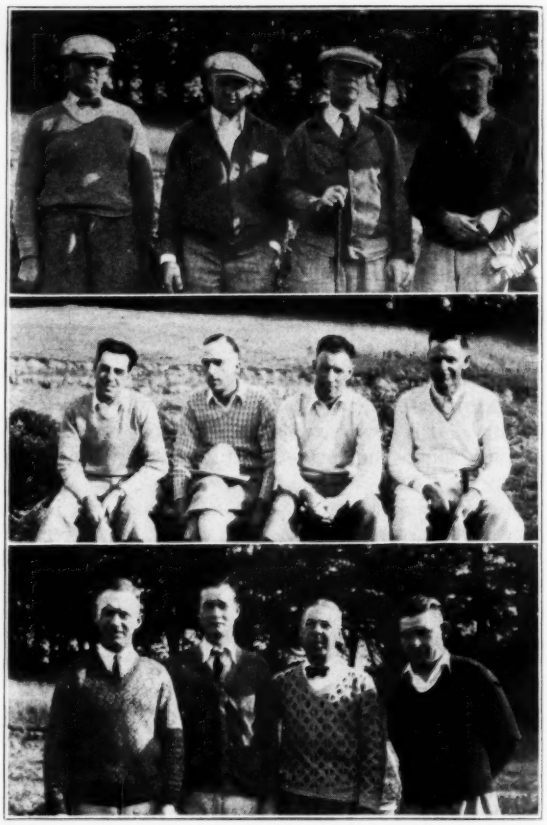
Air-Tight Steel Tank Co.
PITTSBURGH, PA.

TANKS

TANKS FOR: High pressure gas and air storage—Pneumatic water systems—Gasoline and oil storage—Oil burning equipment—Open top—Welded. ATSCO Genuine Copper Brazed tanks for high pressure—the tightest, safest, strongest tank it is possible to construct by any known process. A.S.M.E. code tanks.



Top row: H. Brown, Lloyd Logsdon, David Turner and William Turner. Middle row: R. Roney, R. B. Lees, C. J. McCarthy and Jack Camp. Bottom row: William A. Rowe, W. H. Rainwater, A. L. Gillespie and Robert Allmon. Photos taken at the recent golf meet of the Plumbing and Heating Club of San Francisco

the initial payment being deducted from the gross amount, the balance being split into from six to twelve monthly payments.

Another method designed to relieve the contractor of financing his own work on time payment jobs is one that is consummated directly with the bank. The customer signs a note at the bank and the amount of the note is immediately transferred to the credit of the contractor, while the customer pays off the note either at maturity or in installments.

While it was agreed that installment selling helps to remove the merchandising of plumbing products from the competitive field, it was also made plain that the contractor should not go too deeply into time payment work without careful study of the plan.

◆

Bay District Heating Contractors Meet

The San Francisco chapter of the National Association of Heating and Piping Contractors had as a feature of its November 21 meeting an address by E. G. Byrd, field representative of the parent organization.

The dinner meeting took place at the Palace hotel and was attended by officers and members of the Oakland chapter and local representatives of manufacturers and jobbers of heating materials, in addi-

tion to practically 100 per cent. of the San Francisco membership.

President Curtiss N. Gilley presided, introducing Mr. Byrd, who is making an extensive tour of the West Coast from the Canadian line to the Mexican border, adding impetus to local drives for new members. Mr. Byrd expressed particular interest in the formation of a Pacific Coast conference group to be composed of individual chapters, in order to establish closer contacts between the West Coast members of the industry.

The meeting was also addressed by Thomas C. Douglass, manager of the San Francisco chapter, and President A. Poulson of the Oakland organization. Mr. Poulson explained the progress of the certified heating program in the East Bay district and the method of handling jobs for certification.

◆

Philadelphia Association Elects Officers

Addressing the monthly meeting of the Master Plumbers' Association of Philadelphia, Pa., on December 5, E. Harold Mitchell, manager of C. L. Weber & Co., Inc., spoke on credits, as did George F. Banner, credit manager of Woodward-Wanger Co., both of that city. Other speakers were C. W. Wanger, Woodward-Wanger Co., and Prof. Whitaker of the University of Pennsylvania. The latter commented on a sales demonstration presented by William Wyle and Mrs. F. J. O'Brien, which involved the sale of a gas water heater as a Christmas gift.

The nomination of officers for 1930 resulted in practically all the executives being renamed. These were as follows: President, Maney J. Feeney; Secretary, Robert H. Pflug-Felder; Treasurer, George Moeller, and Sergeant-at-Arms, E. H. Mackay; together with Messrs. Uber, Dykes, Moran, Quinn, Asquith, Seibel, McGuinnis, Beahm, and Soehle, as the board of directors.

◆

Brooklyn Masters Hold Dinner Dance

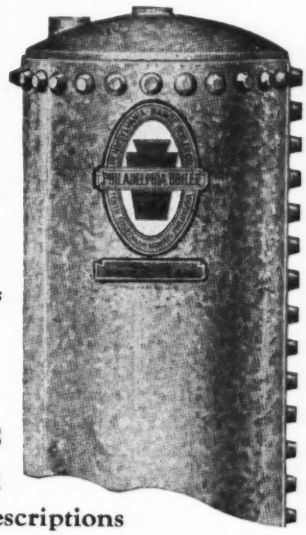
The Master Plumbers' Association of Brooklyn, N. Y., was host at one of the most successful social affairs in the organization's history, on November 30, when it held a dinner dance at the Elks club of that city. The club afforded a fitting atmosphere for the gathering which approximated five hundred members and guests. The committee in charge of arrangements had secured some splendid entertainers and music for the evening.

During dinner a number of vocal features were presented by several artists, and between courses as well as after dinner, the dance floor in the center of the club's huge ball room attracted the diners. George Flynn, a musical director of some note and a brother of Commissioner William J. Flynn, past president of the New York state association, held the baton on the dais for the musicians. Chairman Matthew J. Kennedy, also a past state president, accepted the responsibility of arranging the function. Besides the recently elected officers of the organization: P. H. Gleason, president; Harry Voletsky, vice president; J. J. Dixon, treasurer; T. H. Pinnell, recording secretary; W. R. Marseglia, financial secretary; Patrick Halloran, marshal;

Range Boilers

TANKS *for* Automatic Heaters

To Your Specifications



COIL BOILERS
STORAGE TANKS
Pressure and Special
of All Descriptions

Riveted and Welded — Black and Galvanized

PENNSYLVANIA RANGE BOILER CO.
Main Office and Plant:
S. W. Cor. 24th and Washington Ave., Philadelphia

JARECKI
VALVES

All the production and engineering experience that Jarecki has gained in its 78-year career of service is concentrated in Jarecki Valves. The line is comprehensive, comprising a size and style to meet your needs. Each individual valve is tested under pressure. A thorough inspection system assures uniform dependability. A generous margin of safety over working pressure ratings gives an *extra measure* of service . . . To learn why so many companies standardize on Jarecki Valves, we suggest that you specify them when next in the market.

[Established 1852]
Jarecki
Jarecki Manufacturing Company
Erie, Penna., U. S. A.

Belknap Radiator Valves Come Into Favor

THE rapid growth of manufacturing in the late 70's called for more and bigger industrial and public buildings. With the increase in the number of floors there arose the necessity for adequate heating facilities. The rows of exposed steam pipes extending around the walls of small shops gave place to radiators for steam and hot water. Mr. Belknap was quick to take advantage of this growing market and in addition to the already established line of valves he produced a specially designed bronze radiator valve, in principle surprisingly similar to those made today by The Belknap Manufacturing Co., at Bridgeport, Conn.

BELKNAP

Have you tried the new

"HOT DOG!"

FIREPOT

WATER HEATER

NOTE THE SLOPE!
Dead Coals Fall Away Increasing Draft.

NOTE THE WEB!
Adds Heating Surface — Poker and Ashes Can't Catch in the Loop.

LOW IN PRICE
A "PIPE TYPE" HEATER MINUS LEAKY JOINTS. CHEAPER THAN CAN BE MADE IN YOUR SHOP. BRASS AND IRON.

No. 1— 20-40 Gals.
No. 2— 40-60 Gals.

The RICHMOND FOUNDRY & MANUFACTURING CO. *Inc.*

RICHMOND, VIRGINIA

"A DEPENDABLE SOURCE OF SUPPLY"

A. Cohn, sergeant-at-arms, and August Steiger, secretary, a large number of the members assisted Mr. Kennedy.

The gathering included master plumbers, wholesalers and manufacturers. Among the first group were Fergus McLoughlin, president of the New York state association; Secretary Vincent J. Duffy; Harry Sugarman, president of the Bronx association; S. George Arnone, secretary of the Bronx association; Jacob Stockinger, president of the Queens association; Emil Seikman, president of the Richmond association, and a number of the members of the board of governors of the Manhattan association.

◆

Oakland Masters Discuss Credit

The master plumbers of the East Bay section, surrounding Oakland, Calif., have given considerable thought to the subject of credit, agreeing, as a working basis, that credit involves giving something of value in trust at a risk. And agreeing further that in granting credit, considerations of moral risk, faith, ability to pay, confidence, business character and references, should be gone into thoroughly.

Much discussion, too, has revolved around the question of extending credit to transients, particularly those of the tenant class. In this connection it has been found advisable, first, to secure the owner's permission to go ahead with the work ordered by tenants.

Generally speaking, credit investigation was not considered necessary when involving small amounts, as the losses from this risk were practically negligible. It was also brought out that when credit bureaus are not consulted, accommodation is usually granted without question to those for whom the masters have previously done work.

◆

Heating Industry Represented at Washington Economic Clinic

H. T. Richardson, president of the Institute of Boiler and Radiator Manufacturers of the United States, and M. J. Beirn of the same organization were designated to represent the boiler and radiator industry of the country at the meeting of leading representatives of business and industry, held at Washington, D. C., December 5.

The Institute of Boiler and Radiator Manufacturers is said to represent, in its membership, 100 per cent of the boiler and radiator manufacturers of the country. Mr. Richardson, president of the institute, is vice president of the Richardson & Boynton Co., and Mr. Beirn is a vice president of the American Radiator Co.

◆

Establishes New Concern

C. W. Rossen, for 35 years president of the Des Moines Plumbing and Heating Co., Des Moines, Iowa, has organized a new plumbing concern in that city, which will be known as the Rossen Plumbing and Heating Co. Mr. Rossen has leased quarters in the building located on the southwest corner of 11th and Grand avenue.

Heating Systems and Insurance

Editor, DOMESTIC ENGINEERING: A customer of mine who happens to be in the insurance business was in my store a few days ago, talking about a house he intends to build. He informed me that he intended to install a hot air heating plant.

We discussed the advantages of hot air heat and of radiator heat, and I finally remarked that even if there were no other features in favor of radiator heat than the absence of fire hazard, that was enough for me, as I have a wonderful feeling of safety in using radiator heat.

He then asked me, "If they are so much safer than hot air, why don't the fire underwriters give a house with radiator heat a lower insurance rate than one with a hot air furnace?"

Of course I couldn't answer that, but it has set me thinking that something might be done along the line of lowering the insurance rate in a radiator heated house, as it must be acknowledged, by all people familiar with heating, that the fire hazard is much less with radiator heat than with hot air heat.

Gary, Indiana. Edw. W. Munkhoff,
Plumbing and Heating.

In answer to the above letter we present a symposium of the opinions of a selective group of fire insurance experts, actuaries, fire underwriters and research engineers.

The question of whether fire insurance rates would be affected if there were a difference in fire hazard between hot air and radiator heat, implies a theory that the fire insurance rate should vary to accord with every little factor of variation in the property that may make for more or for less fire risk. This theory is true only up to certain limits. There are vast fields of the business in which it is not feasible to employ it, and one of these is in the field of dwelling houses.

The principle of fire insurance is that of annulling the burden of the individual fire loss by distributing it over the entire community. The original, the simplest and, in many ways a very sensible theory, of this distribution is that it should be distributed equally to all who receive the protection of insurance. But this theory could not last in the face of commercial competition, which made companies willing to accept the most highly desirable business at lower rates. It gave way to the theory that the fire loss burden is to be distributed in proportion to the fire hazard of various classes of property, those shown by experience to draw most frequently upon the fund being assessed more than classes which showed fewer and smaller losses. It is practical to do this up to certain limits because the experience on classes of property can be averaged.

Finally came the theory that rates should be varied to accord not only with the class of a man's property, but with the individual peculiarities of each piece of property. This is all right up to a certain extent, and has the advantage that it enables an individual to govern his own rate to some extent and gives him a financial incentive to improve his fire risk. On the other hand, this theory of rating has the defect of looking too much at the present, and not enough towards the future when the losses that we have to pay are going to occur.

Long experience has shown that it is human nature to

IMICO UNIONS

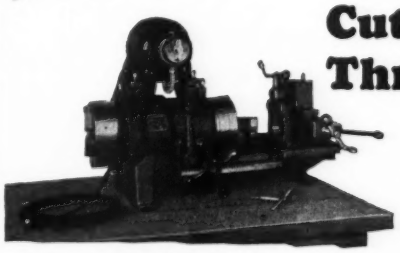
NOTE THE BRASS DISC

Made of Refined Malleable Iron with Brass Seat Inserted in Place by Powerful Pressure So That It Cannot Become Detached.

Approved by Underwriters' Laboratories.

ILLINOIS MALLEABLE IRON CO.
Chicago, Ill.

Manufacturers Full Line Iron Pipe Fittings



THREADS RAPIDLY

Cuts Pipe Threading Costs

A full-fledged Portable Pipe Machine for Reaming, Chamfering, Threading and Cutting Off pipe from ⅛" to 2".

Uses any standard make of solid square right or left hand pipe or bolt dies.

Weighs 250 pounds. Operates off either A. C. or D. C. lighting circuits. Is sufficiently powered to drive geared heads on the larger pipe, up to 6".

A real pipe machine at a price you can afford. Ask us about it today. Give us the name of your supply dealer.

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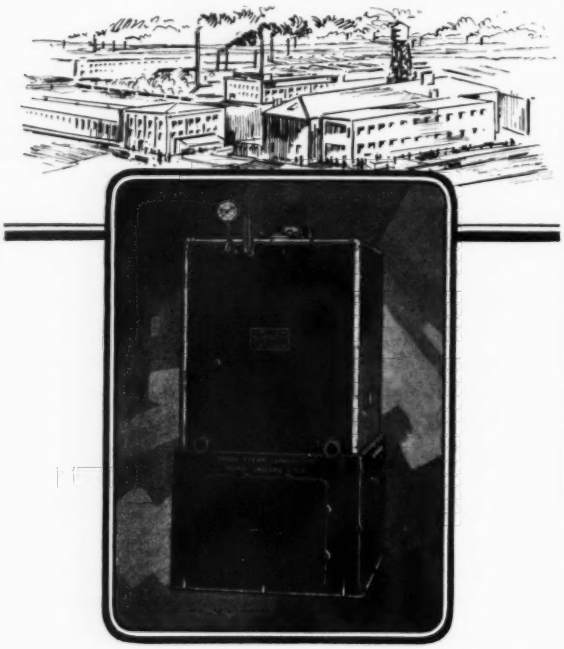
PEERLESS MACHINE CO. • Racine, Wisconsin

"CHICAGO"
Pipe Threading Machines Production Precision
Latest and Most Advanced Types on the Market
Chicago Pipethread Machine Co., Racine, Wisconsin
Offices and Factory: 1421 Racine Street

A Size for Every Purpose



PRODUCTION! is the cry in all factories today. It is highly necessary that factories be heated evenly and that the temperature be kept at a constant level . . . and this job must be accomplished economically. Any factory—no matter what size—can be heated perfectly with Bryan Boilers.

This is an avenue of sales thru which many Bryan Dealers are profiting handsomely. Dealers who are really "merchandising" Bryan Boilers are making big money.

BRYAN
STEAM CORPORATION
BOILER DIVISION
PERU, INDIANA U.S.A.

underestimate the hazard of these losses. We cannot average individual factors the way we can large classes of occupancy. It is very difficult to make even a rough prediction of their effect. The fact that your stove is set very close to woodwork makes for a great increase in your fire hazard, yet is an increase which anyone would be at a loss to measure. Moreover, the insurance company cannot keep track of the millions of stoves in the country and how near they are to woodwork. It can only inspect the larger properties, leaving the millions of dwellings mostly uninspected.

Dwelling houses, therefore, are rated according to the so-called minimum rate method. The rates are made on the experience of the town or section of the town as a whole, and are the same for all dwellings falling within the same minimum rate classification. Consequently, it does not make any difference in the rate whether your house is heated by hot air, hot water, steam, coal stoves, gas radiators, open fireplaces or is not heated at all.

In the case of large properties such as manufacturing plants, there is an important group which has attained a low level of fire hazard by the use either of an automatic sprinkler system or of fire-resistive construction, combined with generally non-inflammable contents. The rate is so low in these cases that it levels all minor differences of detail. There is a very much larger class of business property which does not have the advantages of sprinkler protection or fire-resistive construction. In this field there are analytical rating systems which attempt to vary the rate to quite an extent, according to the more permanent features of construction and occupancy. But you can easily see that there is room for only a limited number of rating factors in even the most complicated of such systems, and that many of the factors that make for fire hazard fall outside the limits of feasibility.

In some classes of property, under some of these systems, a small difference in rate results from the fact that a certain piece of property, like a cold storage warehouse, has no heating system in it at all, as compared with a building containing a heating system. But on the scale used, and in comparison with the many other factors involved, this difference between no heating system and any heating system is so small that the difference, if any, between a hot air and hot water system is simply microscopic.

That brings us to the question as to whether there is any appreciable difference in fire hazard between the two types of heating systems. The consensus of opinion is that if both systems are well installed there is no appreciable difference in fire hazard.

The theory, that the fire insurance rate is an individual matter for the particular property, is being adopted by stock fire insurance companies to every extent that is feasible. This fact, however, makes it impossible to give flat answers to general questions regarding the rate effect of certain types of equipment. A question of this sort has to be referred back to the particular risk, especially to the man's local fire insurance agent, who can set in motion the machinery to have the question answered so far as it applies to this particular risk. If the man owns a mercantile or similar property that is rated under one of the analytical systems or schedules, it becomes possible to submit a cost analysis of his fire insurance

expense, and show what effect, if any, the proposed change would entail.

The modern agent's clients may have rates analyzed and their insurance needs fully serviced as a part of the insurance service which a good agent and the high grade stock companies now make available. These men, likewise, will co-operate with the man about to build, with the builder or the contractor, and with the architect, to the end that a new piece of property may take shape as a well rounded-out job, as complete in regard to care of fire hazards and protection of insurance as in other ways.

◆

C. Anton Vogt Dies

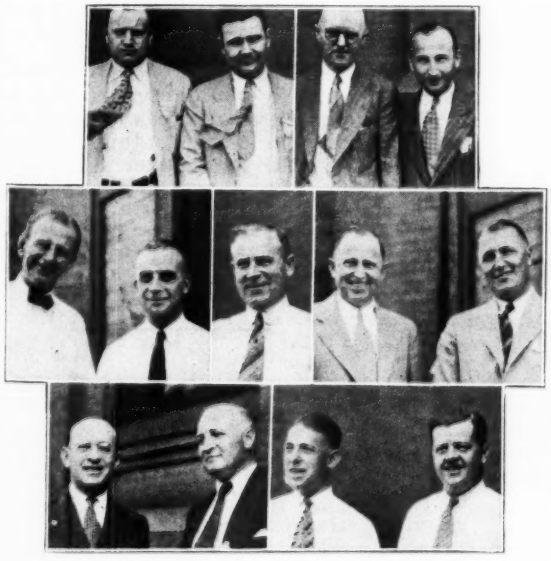
C. Anton Vogt, plumbing inspector in the city of Waukesha, Wisconsin, since the office was created in 1917, died in that city Wednesday, December 4. He was in his 67th year, and prior to his appointment as inspector he had been connected with public utility concerns. Mr. Vogt was born in Zurich, Switzerland, but came to this country with his brother many years ago.

◆

Houston Heating Contractors Use Co-operative Advertising

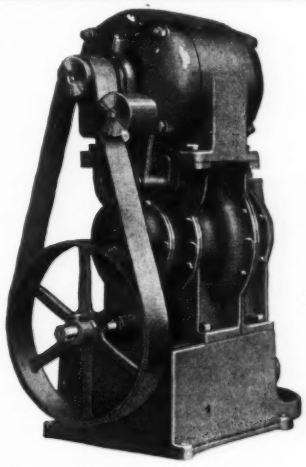
The Heating and Piping Contractors Association of Houston, Tex., has adopted a plan of co-operative advertising to inform the local public as to the meaning and value of certified heating, in line with the plans of the Heating and Piping Contractors National Association. At present only newspapers are being used, but the campaign may be expanded to include other mediums later, according to F. M. Logan, one of the six contractors sponsoring the drive.

"We are most heartily in accord with the aims and



Top row: A. J. Buckel and H. D. Reynolds, both of St. Louis, Mo.; H. E. Stiver, sales manager, and L. P. Koenreich, both of Deming Co., Salem, Ohio. Middle row: F. A. Best and A. McGowan, both of Liquid Veneer Corp., Buffalo, N. Y.; B. W. Vesey of Finn Heater Co., Detroit, Mich.; C. E. Pullum and R. E. Moore, both of Bell & Gossett Co., Chicago. Bottom row: Otto A. Schaffer and Leon Bloch, both of Republic Brass Co., Cleveland, Ohio; H. C. Schmidt and Thomas W. Sullivan, both of John G. Kelley Co., New York City. Photos taken at the Buffalo convention, N. A. M. P.

ALAMO DORWARD

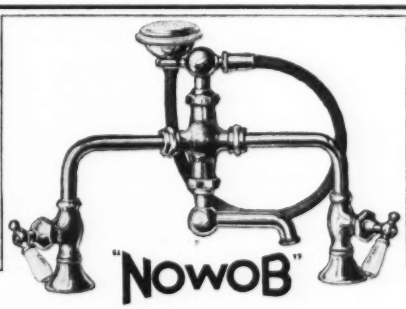


Patented 9-4-23

LESS noise and no vibration means less friction and less wear when Alamo Dorward Rotary Power Heads are on the job.

Ask us—or your jobber how we have reduced wear and noise to the minimum.

ALAMO ENGINE CO., HILLSDALE, MICH.



"NOWOB"

12-in. Center to Center
D-478

"No Wear on Body"

The "Nowob" construction will be found only in S & K Rainbow faucets. This shampoo outfit is equipped with a "Nowob" body which means that the body will never wear out and will last as long as the building.

It is placed on the slab and *remains there for good.*

No switch valve or sliding device *between the swing spout and swing shampoo attachment.*

Ask your jobber to show you the S & K "Nowob" line.

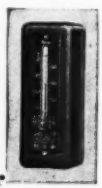
STREET & KENT MFG. CO.
1954-64 CLYBOURN AVE. CHICAGO

purposes of the national body," Mr. Logan explains. "We are most appreciative of the general plan; and to show our appreciation, and at the same time to benefit still more from our membership in the national body, we are carrying out this local advertising program. Of course the local move is young; we naturally are feeling our way. Our expenditures, of necessity, must be light at first; but we believe that the advertising will create a cumulative result that will, in a manner, enable the advertising to finance itself and expand to larger activity."

Besides Mr. Logan's firm, other concerns and individual contractors, forming the local association are: Barber Plumbing Co., Inc., George J. Robischung, Inc., Lee Rogerson, The Warren Co., Inc., and the Warren-Shivers Co., Inc.

Mr. Logan further explained, "The advertising is serving to build more confidence in us, while at the same time it is getting new business for association members, directly or indirectly. It is giving those most concerned, a practical idea of what the organization means to them in protection and proper work."

Annual outing of St. Paul Master Plumbers' Association at Orchard Lake, Minn.



$48 installed and guaranteed for one year

Only the highest quality materials are used in "Sheer Comfort" Heat Regulators yet the simplicity of electrical and mechanical design have made posssible a unit that sells, installed, for practically one-half the price of any similar device on the market.

SHEER COMFORT
heat Regulator

will do anything any other heat regulator can do—*and more*. It is *completely automatic* with four exclusive safety features found in no other device,—yet it sells at a fraction of the cost of any other type.

H. M. SHEER CO.
211 Hampshire Street, Quincy, Ill.
Established 1889

Double Bottom Hung Wall

Made of all pressed steel of highest grade. No cast iron parts to break or crack. Furnished complete by the factory—nothing for the contractor to supply.

An Extra Measure of Safety

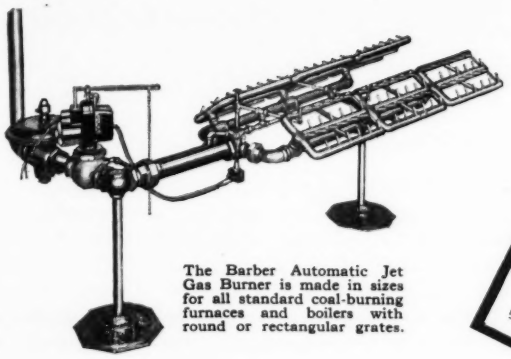
Moore Radiator Hangers assure an extra measure of safety for everyone concerned.

The customer is safe from the inconveniences of old methods of radiator suspension and you are safe from loss of time and money and from customer dissatisfaction.

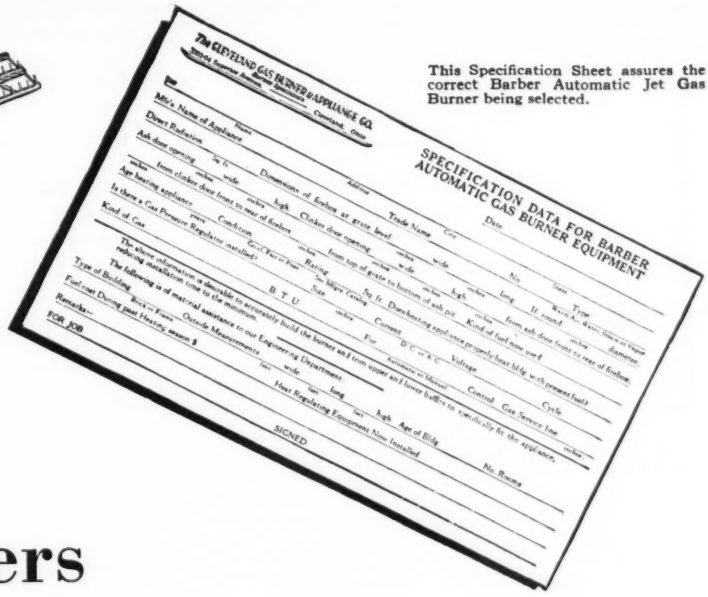
Moore Radiator Hangers are the *extra measure* hangers. There's an extra measure of safety, of quality and profit.

Ask your jobber or write direct for full information on Moore Hangers.

Carty & Moore Eng. Co., Inc., 611 W. Larned St. Detroit, Mich.



The Barber Automatic Jet Gas Burner is made in sizes for all standard coal-burning furnaces and boilers with round or rectangular grates.



This Specification Sheet assures the correct Barber Automatic Jet Gas Burner being selected.

Now— your customers are ready to buy

BARBER *Automatic* JET GAS BURNERS

COLD weather brings you the greatest opportunity of the year for making profits with the Barber Automatic Jet Gas Burner. For your customers are now burdened with their coal-burning furnaces and boilers. They will welcome the freedom of house heating with gas, particularly at a low cost.

Show your customers how a Barber Burner modernizes their coal-burning furnace or boiler. How it stops back-breaking, coal shoveling and ash carrying. How it eliminates smoke, dirt and soot in the house. How it does away with frequent trips to the cellar to tend the fire, particularly early in the morning and before retiring at night. How it furnishes without any attention clean, uniform, healthful temperatures at all times.

The Barber Burner converts any good coal-burning furnace or boiler into an efficient gas heater.

To make your profits with the Barber Burner, your principal task is selling your customer on gas as the ideal house heating fuel. Then show him how easy he can change with a Barber Burner.

Selecting the correct Barber Burner is simple. Just fill out a specification sheet with the trade name, number and other data about your customer's furnace or boiler. With this information and our experience from thousands of successful installations in 12 years, we are able to ship you the right burner. It will fit the furnace or boiler like a suit of clothes on the human form.

Reasons for gas being the ideal house heating fuel are outlined in the booklet, "The Ultimate Achievement in Simplified Home Heating." It also contains full details about the Barber Automatic Jet Gas Burner and how the specification sheet is used to assure correct installation. Write for a copy today.

The CLEVELAND GAS BURNER & APPLIANCE CO.
Burner Specialists
3702-04 Superior Avenue. Cleveland, Ohio

We believe that your plan of using specification data sheets is very good especially where conversion jobs are required . . . We have installed a number of your burners on new installations . . . and every installation has been successful.
—Washington Gas & Electric Co., Aberdeen, Wash.

We wish to thank you for your excellent new catalog. It is certainly the best we have ever seen in its line.
—Tidewater Engineering Co., Gloucester, Mass.

We are in receipt of inquiries from the following list of our customers asking that we furnish them with specification sheets. If you will please send each one of these customers your catalog and several specification sheets, we will be very much obliged to you.
—Ferguson Hardware Co., Kingman, Kansas.

I am herewith inclosing specification data sheets for two Barber Burner installations. I would thank you to quote me on burners you would recommend for these boilers, also how much gas you figure your burners would use on these jobs.
—R. H. Holtzworth, Huntington, W. Va.

These excerpts from letters of gas companies and other distributors throughout the country are typical of many we have received. We shall be glad to render the same service to you.

Showing one method of installing a Barber Automatic Jet Gas Burner. Other models can be installed through the clinker door opening without removing the grate bars.

Tank Fittings of Quality

1856 "McSHANE" 1929

The ORIGINAL Compound Lever Ball Cock. Elevated, Low-Down, Top and Bottom Supply Tank Levers and Valves.

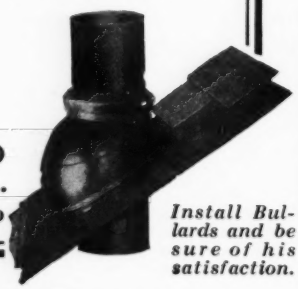
Our Catalog is

McSHANE BELL FOUNDRY CO.
Baltimore, Maryland

Bullard Roof Flange

The day when a roof was the top of a house is gone. Today the vogue for [colorful] [beauty has brought new meaning to a roof job.

Naturally, the owner who pays for one of the new colored roofs wants the detail of the roof flashing in keeping.



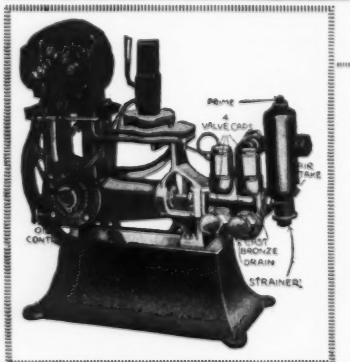
THE BULLARD SPECIALTY CO.
Tiffin :: Ohio

Install Bullards and be sure of his satisfaction.

THE REPUBLIC TRIP LEVER DRAIN

THE ONLY MECHANICAL DRAIN THAT IS 100% SANITARY

The REPUBLIC BRASS COMPANY *and its subsidiary* GRABLER-REPUBLIC, *Inc.*
4900 EUCLID BUILDING ~ CLEVELAND, OHIO



THE profit that you enter on the books when you install a Kalamazoo Water Supply System is never lessened by service costs.

Ask us to tell you how Kalamazoo excels.

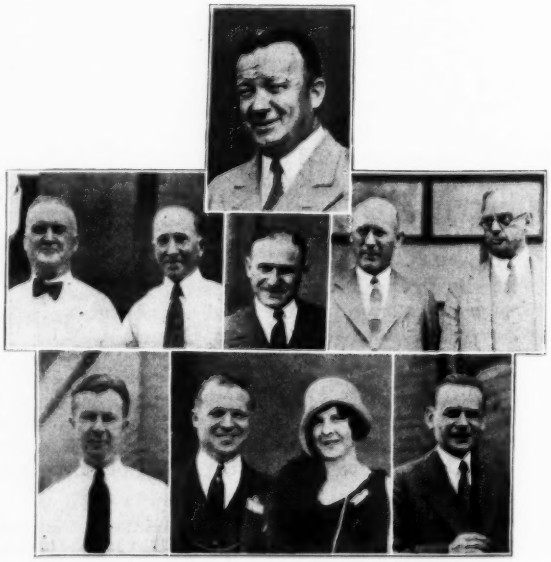
National Water Lift Co., Kalamazoo, Michigan

Advocates Higher Education for Master Plumbers

The following is extracted from a letter received from a master plumber in the state of Texas. Because of the communication's personal nature, the author's name is, of course, omitted.—Editor's Note.

Editor, DOMESTIC ENGINEERING:—A space in the reading section devoted to the art of salesmanship and influencing human behavior ought to prove an attractive feature. What the plumbers of this country need is not so much mechanical knowledge—most of them are experts in this respect now—what they need is a knowledge of how to create a desire among home owners, etc., for modern plumbing equipment, and have this desire manifest itself so strongly that the people will demand the latest and the best and will be glad to pay for it. The automobile, radio and furniture industries have shown what can be done in this respect. There is no reason on earth why the plumbers can not do likewise. I am speaking from experience. From 1915 to 1925 I tried to fight competition with the usual result, a battle to keep from going in a hole. In 1925 I started to use my brains. Attended night schools on these subjects, read any number of books on salesmanship, psychology, etc. Joined public speaking clubs and debating clubs for the purpose of improving my mental faculties. Got out and mixed in with a good class of people. Once a week a college professor and myself argue over the leading questions of the day. We both get enjoyment out of it. Only two weeks ago I was called upon to act as toastmaster at a banquet given by the four public speaking clubs and among those attending were bankers, brokers, lawyers, doctors, etc.

Am not stating these things from an egotistical view-



Top center: J. L. Comer, manager Chicago exhibit room, Crane Co. Top row: Henry Kenning and David Utz, both of W. A. Case & Son Mfg. Co., Buffalo, N. Y.; M. Ettlinger of Morton Mfg. Co., Chicago; W. F. Aaron and Charles J. G. Hans, both of Mueller Co., Decatur, Ill. Bottom row: P. D. Rech, Hoffman Specialty Co., Inc., Waterbury, Conn.; Chester Bess of Republic Brass Co., Cleveland, Ohio; Blanche Flanders of Syracuse, N. Y.; H. Hoeltge, Central Foundry Co., New York City. Photos taken at Buffalo convention, N. A. M. P.

point, but just to show that if the plumbers of this country would devote some time to real study and make an effort to improve themselves mentally, that they would be a whole lot better off not only in the esteem that the public would hold them but also financially. In 1925 my assets were nil. Today they are around thirty-five thousand dollars. In 1925, I didn't know enough about salesmanship to sell a meal to a hungry man. Today I generally get what I go after. In 1925, I didn't have the nerve to get up before a group of six people and express an opinion; this week I got up before 2,000 people at an open forum meeting and took advantage of a one-minute allowance to speak, and would have spoken an hour as far as having the nerve and knowing what to speak about is concerned.

If DOMESTIC ENGINEERING would only devote some space to this important matter of the improvement of the mind among master plumbers and keep hammering away, that it is not how much work that is done that counts, it's what you make in dollars and cents over and above operating expenses that counts. One job with a $50.00 net profit is better than five with $10.00 net profits, and the only way to make all jobs show a profit, and a good one, is to get the mind out of the mechanical rut it is in. Instead of having the mind filled up 100 per cent with the practical end of the work, let 50 per cent be devoted to the business end, and keep on improving that 50 per cent that has been set aside for the business end until you become a master in business fundamentals as well as being a master of plumbing.

How I Became a Merchant

(Continued from Page 83)

a man, always make your customer believe that you will do that particular job yourself in order to be assured of everything being right. That covers up the fact that you have no men working and injects your personal interest into the welfare and comfort of the customer as well."

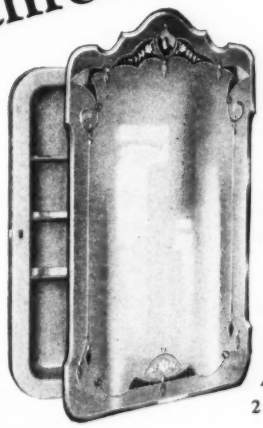
Putting the Plans to Work

I want to say that I was thoroughly convinced that the ideas of that specialty salesman had a lot of good common sense behind them. I went to work with a will. I did conscientiously follow up my letters. The result was that in six months time I had many of the old customers back, money in the bank, and my business growing. In four years I was in financially good shape and able to keep an organization of mechanics working full time.

There were two outstanding factors that were primarily instrumental in my success. One of them the ideas of doing things different from my competitors, being original, that I got from that specialty salesman. The other was my early training in the road as a neckwear salesman, where I learned that if you don't go after and dig in for business, it never comes to you, at least not enough of it to be worth while.

Needless to say, that specialty salesman got his order for specialties, and many of them, afterwards. He had "ground his axe" when he spent three hours of his time that first afternoon he called to see me giving me constructive ideas.

A Decisive Factor in Bathroom Design



ALHAMBRA
2 Color Mirror

Corcoran
One-piece Steel Bathroom
Cabinets

Today's first requisite in bathroom design is fixtures and equipment that make this room of rooms comfortable, convenient, beautiful and stylish.

The cabinet plays an unusually important part in helping to make this possible. Corcoran Cabinets have been designed especially to meet the desires and wants of the most discriminating people. Its popularity and acceptance is proven in the enthusiasm of dealers and jobbers who are handling this profit-making line. Write today for complete details and specifications.

Sold through jobbers only

THE CORCORAN MFG. COMPANY
Cincinnati, Ohio

Complete stocks are now being carried in Chicago, New York, Philadelphia and Boston; communicate with Corcoran offices at 1820 McCormick Bldg., Chicago; 1228 Locust St., Philadelphia; 11 West 42nd St., New York, and Beaudette and Graham Co., 915 Boylston St., Boston.

CORCORAN MFG. COMPANY, DEPT. DE-12

Gentlemen:
We are interested in Corcoran One-Piece Steel Bathroom Cabinets. Kindly send catalogue and full details.

Name.....

Address.....

City.....State.....

Jobber.....Contractor.....

SLOAN ROYAL-MARINE-GEM FLUSH VALVES

Graham, Anderson, Probst & White, *Architects*, Chicago
E. P. Mellon, *Advisory Architect*, Pittsburgh
W. N. Sauer, *Plumber*
Standard Sanitary Mfg. Co., *Fixtures*

KOPPERS BUILDING, Pittsburgh, Pa.

Equipped throughout with

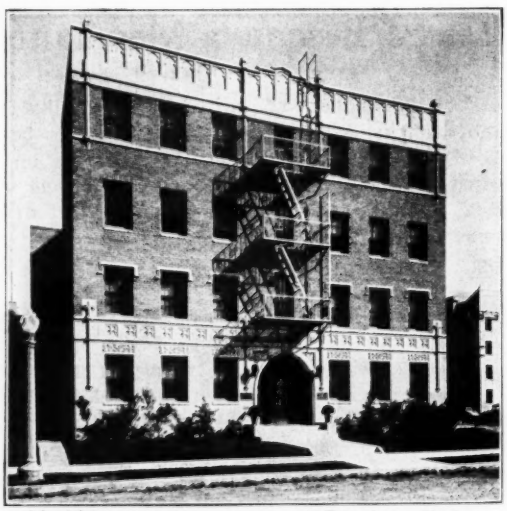
ROYAL
FLUSH VALVES

J. Scudder Adkins, *Architect* D. & H. Jacobs, *Plumbers*
Mutual Mfg. & Supply Co., *Fixtures*

RIVERVIEW APARTMENTS, Cincinnati

Equipped throughout with

MARINE FLUSH VALVES



Max Maltzman, *Architect* Al. Feigenbaum, *Plumber*
California Pipe & Supply Co., *Fixtures*

PLYMOUTH APARTMENTS, Los Angeles

Equipped throughout with

GEM FLUSH VALVES

SLOAN VALVE CO.—CHICAGO

Branches in All Principal Cities

MARKETS

BUSINESS REPORTS FROM LARGE JOBBING CENTERS

Jobbers Show Conservatism In Ordering

THE end of November and the first ten days of the current month witnessed in the main only a moderate activity in the movement of plumbing and heating supplies. This condition prevailed in more or less the same degree in practically all of the large jobbing centers, especially where plumbing materials are concerned. In some sections a fairly good demand prevailed for heating material and in the New York district reports indicate a slightly better business in both plumbing and heating goods since the turn of the month. With contractors' requirements generally light and with inventory-taking just around the corner, buyers for wholesale houses are exerting the utmost conservatism in their purchases. Producers are taking care of business promptly. No changes have been announced in manufacturers' prices to their distributors since our last review.

November wholesale prices of standard plumbing fixtures for a six-room house, as collected by the department of commerce from reports of twelve representative manufacturers and wholesalers, were $100.58 *as compared with* $99.20 *in October and* $100.79 *in November,* 1928.—*October shipments of vitreous china plumbing fixtures, including all vitreous chinaware which in regular practice is connected with a drainage system, as reported by* 26 *manufacturers to the department, were* 241,934 *pieces, as compared with* 272,776 *pieces in September and* 268,006 *in October,* 1928.

NEW YORK

Slight Increase Is Felt In Volume—

Activity in this territory during the past two weeks has shown a perceptible gain especially with the turn of the month. The demand for heating materials is if anything more sustained than it was a year ago although the volume for the season as a whole will probably not compare favorably with 1928 in the opinion of several wholesalers.

According to many manufacturers in various lines, notwithstanding the tendency to keep inventory as low as possible, wholesalers have been forwarding fairly heavy specifications during the first week or ten days in December, indicating that their stocks have been at a minimum and that contractor demand is quickly reflected on plants.

Among close students of conditions in the industry it is felt that the cheap money being released from securities loans is already making itself felt among builders and contractors with resultant improvement in collections. Export requirements during the recent past have been somewhat smaller, according to several leading houses, and it is felt in some quarters that the current uncertainty in regard to the United States tariff legislation is causing some hesitation on the part of Cuban and South American customers, as distributors there are awaiting effects on local conditions before making forward commitments for their own inventories.

November construction in the Metropolitan area of New York was the highest total recorded since July, according to F. W. Dodge Corp. A decided increase of well over $72,000,000 was noted when compared with the October records, and an increase of more than $35,000,000 was recorded over the corresponding month of last year. New building and engineering work during the past month amounted to $149,884,400 against $78,001,800 for the preceding month and $114,721,600 for November of last year. The amount of new work reported in the contemplated stage during the past month amounted to $209,518,400, which is an unusually high total. The following table gives comparative figures by classes for the first eleven months of 1928 and 1929:

First Eleven Months

	1929	1928
Res. Bldgs.	$480,393,000	$803,768,000
Comm. Bldgs.	254,153,000	214,712,000
Pub. Works & Util.	200,238,000	227,456,000
Educat. Bldgs.	64,561,000	63,414,000
Indust. Bldgs.	47,125,000	29,926,000
All others	80,976,000	93,120,000
Total	$1,127,945,000	$1,432,396,000

Soil Pipe

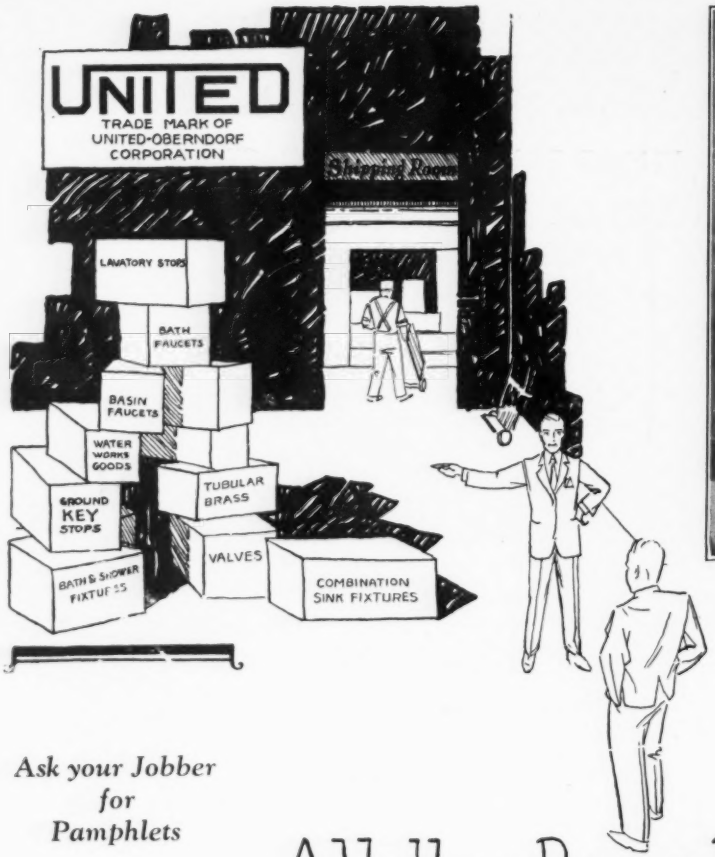
Shipments of this commodity are reported by most manufacturers as being light at present and specifications from wholesalers are in the main for the purpose of filling in stock. Wholesalers report a fairly constant demand from contractors although requirements are seasonably light. There have been no changes in prices at any point of distribution and requirements on staple items are taken care of promptly.

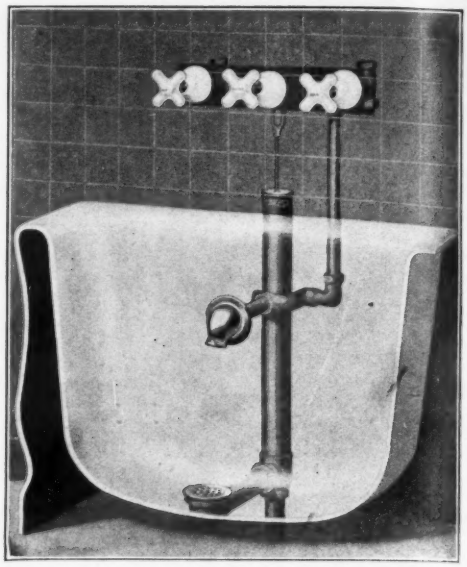
Pipe—Brass, Steel and Wrought Iron

Requirements of pipe are reported as being relatively heavier than in other commodities. Inventories of wholesalers are said to be at a minimum, necessitating frequent specifications on makers. Prices are firm among manufacturers and wholesalers and no difficulty is experienced in meeting the requirements of consumers of these commodities.

Enameled Ware

There has been some increase in specifications by wholesalers during the early part of this month, according to some manufacturers, but the total for December will fall considerably short of that of a year ago in the opinion of several representative interests. However, it is stated that inasmuch as inventories are lower at all points of distribution than they were a year ago, it is believed that requirements on plants will be somewhat more favorable in comparison



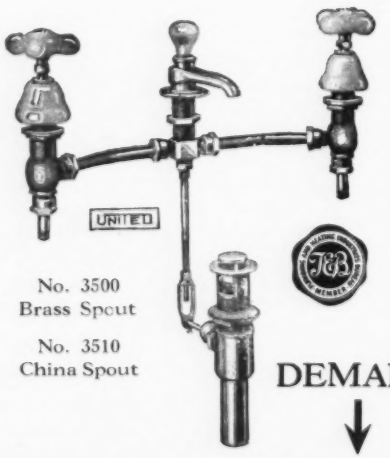


No. 300SA with Brass Spout
No. 301SA with China Spout

"Enduring Quality"
Dependable
Attractive

Ask your Jobber for Pamphlets

All the Brass Plumbing Goods On the Job Trademarked UNITED



No. 3500
Brass Spout

No. 3510
China Spout

All furnished with **UN-I-CHROME** trimmings if desired at slight additional cost.

Style "A" — All metal handles, escutcheons, etc.

Style "B" — China Handles and escutcheons—all exposed parts.

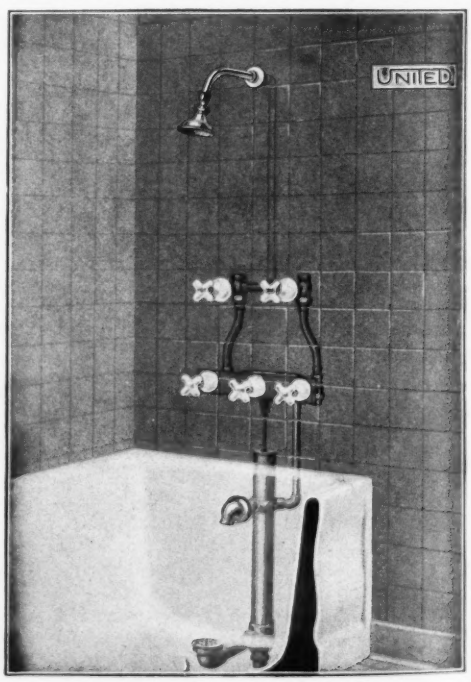
UN-I-CHROME.

DEMAND

UNITED

TRADE MARK REG. IN U. S. PAT. OFFICE

UNITED-OBERNDORF CORP., CLEVELAND, OHIO



No. 322 with Brass Spout and Head
No. 324 with China Spout and Head

with the trend from now until the end of January at least. Specials are reported to be enjoying an increasing demand. No difficulty is experienced in filling requirements and prices are unchanged.

Fittings

Industrial demand has accounted for a proportionately large amount of tonnage moving into this territory according to several representative manufacturers. Several large commercial buildings have also helped to swell the total. Wholesalers report a fairly constant demand and are carrying a minimum working stock at present with inventory in view. Deliveries are prompt by manufacturers and wholesalers on staple items, and prices are characterized as firm.

Pottery

Pottery is experiencing the usual seasonal lull according to most wholesalers interviewed. Contractors' requirements have been light with the exception of several large commercial projects which are now reaching the finishing stage. Residential construction continues light but manufacturers feel that specifications will be heavier after the first of the year inasmuch as most wholesalers' stocks are lower than they were a year ago at this time. No delays are experienced in obtaining deliveries in staple items and prices are unchanged.

Plumbers' Brass Goods

During the past fortnight there has been a growing feeling among students of conditions in this territory that the large producers of copper will have no difficulty in maintaining current quotations for the red metal. The statistics of production are being closely watched and the small floating supply of the metal and the drastic reduction in production will, in the opinion of many, stabilize the current quotation. Purchasing agents for leading wholesalers are maintaining stocks at a minimum and manufacturers report that most specifications received are accompanied by requests for expedited shipments. There have been no changes in either cast or tubular brass products and shipments from plants in most instances come forward promptly.

Range Boilers

There has been some demand in evidence for replacement work since the first of the month. Prices quoted are firm among manufacturers and wholesalers. Inventories are at a minimum all along the line. Contractor requirements in the outlying districts are reported by some wholesalers as showing a slight increase over the prevailing recent trend.

Boilers and Radiators

The demand for heating equipment, especially replacement work, continues to be relatively satisfactory to most wholesalers interviewed. The decline in residential building has, of course, affected the volume of sales adversely in most parts of the Metropolitan area. Stocks on hand are moderate at all points of distribution and prices are characterized as firm. Shipments on staple items are in most cases promptly effected, but some delays are experienced in specials.

CENTRAL WEST

Demand For Material Continues Light—

Plumbing and heating business maintained only a moderate pace in the Central West territory during the fortnight just passed, in the experience of most contractors, wholesalers and manufacturers interviewed. With contractors' requirements at a low level and with inventory-taking time rapidly approaching, wholesalers are averse to ordering material except where absolutely necessary to take care of exceptionally low spots in their inventories. Consequently, little new business is reaching makers that calls for immediate shipment and jobbers are showing little inclination to place orders for shipment after the first of the year. No difficulties are reported by wholesalers in securing material from sources of supply. No price changes have been announced by manufacturers of the major commodities since our last review was published.

Fifteen of Chicago's suburbs registered important gains in their November building permits over the preceding month, according to the building survey department of S. W. Straus & Co.

November figures, when compared with the same month of the preceding year, make a less cheerful showing. The total permits for the forty-six communities during November of 1929 were $4,138,000, as compared with $11,410,000 for November, 1928.

"The month's record may be taken to reflect not only the seasonal drop of the opening of the winter months but also the effect of deflation in stock in market securities," the survey states. "It is believed, however, by many of the suburban building commissioners that many projects planned have only been delayed, indicating further that their sponsors were withholding taking permits until they were sure of how extensive deflation would become. In the light of their explanation it is likely that November will be very close to the low point for the ensuing six months."

Soil Pipe

Contractors are using only small quantities of soil pipe and, as a result, wholesalers' turnovers of this commodity were not heavy during the past fortnight. Manufacturers' representatives say that only a small tonnage reached them during the period as most jobbers have enough soil pipe to take care of their requirements for the balance of the year. There has been no change in the price situation as far as producers' published quotations are concerned.

Pipe—Steel and Wrought Iron

There were no new developments in the steel and wrought iron pipe markets in the Central West territory during the fortnight covered by this report. Jobbers' turnovers of steel pipe are just about "fair" for this season, with requirements of heating contractors helping in a way to bolster the tonnage. Wrought iron pipe seems to be going into consumption at about the rate anticipated by producers. Mill stocks of both types of pipe are of good proportions and distributors' orders are promptly taken care of. Mills have not changed their prices.

Fittings

No better than a "fair" seasonal call prevailed for fittings in this territory during the past two weeks. Wholesalers as a general rule have good enough stocks to take care of the ordinary requirements of their customers without turning to manufacturers for fresh material. Where replacements are needed by jobbers, manufacturers are making immediate shipments. No change has been announced in the prices asked by manufacturers.

Enameled Ware

Manufacturers' representatives interviewed say that calls from wholesalers for enameled ware are very light for this season of the year. With requirements of master plumbers no better than moderate and with inventory time almost at hand, buyers for jobbing houses are not at all inclined to take in fresh material except where necessary to meet emergencies. Manufacturers are in a position to make immediate shipments and they have not changed their published prices.

Pottery

With inventory time almost at hand and with contractor requirements of only a moderate nature, wholesalers of plumbing supplies are not buying pottery except to meet emergencies. Jobbers as a general rule have enough

of this material to see them through the balance of the year with the business that is anticipated. Manufacturers' stocks are ample and wholesalers report no delay in securing material when wanted. Potters have not changed their published prices.

Plumbers' Brass Goods

Salesmen for cast and tubular brass goods manufacturers interviewed recently say that the past fortnight brought them only a very small volume of new business. Wholesalers are looking forward to inventory taking and, with contractor demand light, jobbers are not inclined to take in fresh material. Factories are meeting their obligations quickly from well assorted stocks. Manufacturers' published prices to wholesalers have not been changed.

Range Boilers

There were no new developments in the range boiler market during the past two weeks as far as demand, price and the ability of manufacturers to make deliveries are concerned. Contractors are using only "fair" quantities of range boilers and jobbers can ordinarily take care of this business from stocks on hand. New business reaching manufacturers is light in volume. Makers have not changed their published prices since our last review.

Boilers and Radiators

Most manufacturers interviewed say that November was only fair in a business way in comparison with the same month of last year and that the first part of December failed to show any improvement. Makers seem to agree quite generally that their total volumes of business in boilers and radiation for the year to date are definitely below those for the same period of 1928. Factory stocks are large enough to take care of the trade's needs without delay and makers have not changed their published prices.

MIDDLE ATLANTIC

Business Shows General Decrease—

With the advent of the inventory period little purchasing is in evidence on the part of wholesalers generally. The seasonal decline has taken place in the demand for plumbing materials, causing a general slackening in the business pace. Jobbers in the main are primarily interested in cleaning out all the stock items possible at this time, and are concerned only with buying such materials as they need for immediate use. Building activity has lessened considerably, although a few large projects are remaining to be finished up by the first of the year in so far as the purchase of plumbing and heating materials are concerned. Few orders of major size are being received by manufacturers, and they are mainly occupied with the releasing of goods on previous orders received. Stock orders are best characterized as being few and far between.

While master plumber demand for finishing materials of the plumbing type have receded in a very pronounced manner, heating contractors are actively engaged in installing heating systems, and boiler and radiator producers are kept busy supplying requirements. This demand for heating materials holds steady despite the fact that the seasonal peak has passed. Production has been maintained at a consistent pace, and factories are well stocked in all items, causing little delay in shipments of goods. No price changes have been effected during the fortnight.

Construction figures for the Middle Atlantic Section by F. W. Dodge Corp. give a total valuation of $9,625,000 for the 47th week, of which, $6,281,500 was utilized for non-commercial buildings. A total of $10,202,500 is given for the 48th week from November 23rd to 30th of which $4,403,100 went to residential projects, one of the few weeks of the year in which residential building exceeded the commercial type.

Soil Pipe

Master plumbers' requirements for soil pipe have shown a noticeable decrease during the fortnight. Wholesalers are not prone to buy more than their immediate demands would necessitate, affording little activity in this material. Jobbers' stocks are generally well assorted, and foundries are stocked sufficiently to secure delivery in quick time on all fill-in quantities. Prices are unchanged.

Pipe—Brass, Steel, Wrought Iron

Except for orders received for delivery next year, little is transpiring in the brass pipe market. Wholesalers are disposed to purchasing only such brass pipe as their customers require. Commitments for steel pipe have slackened appreciably since the last report, when makers' salesmen reported a sizeable volume of business for this season. Wrought iron pipe producers have been the recipients of a substantial number of orders not to be expected ordinarily at this time of the year, it is reported. Deliveries are all of a prompt nature, and no change in price has been announced.

Fittings

With the approach of the new year, makers' representatives report that jobbers' orders have moderated to a large extent. Cast iron fittings are enjoying a fairly brisk demand as heating installations continue to be abundant. However, buying is governed entirely by the immediate needs of distributors' customers. Business for the past two weeks has fallen below that of the more recent past periods. Makers are furnishing all orders promptly, and prices have not deviated from previous levels.

Enameled Ware

The enameled ware market has fallen into a seasonal decline, which is ordinarily expected at this time of the year. Manufacturers are engaged in shipping material on orders previously received but are not placing a large volume of new business on their books at this time. Wholesalers have fair stocks on hand, and are not buying in any quantity due to the approaching inventory. Shipments are made in an expedient manner and prices to wholesalers are firm.

Pottery

Pottery volumes continue to be of a light nature in this section. This is somewhat to be expected, but the demand for fixtures going into residential building which in the past was expected at this season has been lacking this year, according to most reports. The bulk of this commodity sold during the past fortnight and the previous one have been consumed by public projects or industrial plants. While distributors' stocks are low in most instances little buying is reported. Most orders received are for first of the year delivery. Potters are well supplied, and have not changed their prices.

Plumbers' Brass Goods

Fill-in buying comprises the major part of the activity in this commodity, as jobbers for the most part are doing practically no enlarging of their stocks until after the new year, and in the majority of instances, they are carrying well assorted items. Makers are in position to fill all commitments promptly, with the exception of a few special items. There have been no changes in price reported by producers in either tubular or cast brass goods.

Range Boilers

Business in galvanized range boilers in this section has been exceedingly light during the fortnight. Little buying is in evidence by jobbers other than to meet the immediate demand which is exemplified by their trade. Well sustained activities are reported

by most makers of range boilers, as regards production, and shipment of goods. This condition has existed practically since midsummer.

Boilers and Radiators

The demand for heating materials has been very good for the past few months, and the past fortnight failed to bring forth any radical change. Manufacturers report that business volumes for the two past weeks have been on a par with the previous period and those preceding it. The recent cold snap in this section further stimulated heating contractors' activities, who were already well occupied. Most wholesalers are of the opinion that their boiler and radiator business this year will exceed last year's. Inventories are good at all points of distribution and prices have not deviated.

NEW ENGLAND

Volumes Are Reduced—

Conditions governing the plumbing and heating business in this territory reflect the seasonal decrease in demand which is usually experienced at the close of every year. Manufacturers and wholesalers have been accorded good receipts during the month of November and a sufficient carry-over of shipments into December as to make this month's volumes comparable with those of other years. Despite moderation in movements from distributing points, there are still noted activities in salesmen's efforts to close some of the major contracts which are still outstanding. During the past several weeks there were awarded a number of industrial and public building contracts which together with those due to be let within the coming several weeks, considerably enhance prospects of good early year shipments for makers and distributors.

With inventory taking now only a few weeks ahead, wholesalers are concerned more with the liquidation rather than sustenance of their stocks. The contractor demand, which is still of fairly active seasonal dimension is well supplied from present inventories at wholesaling points, but it is apparent that bolstering of those supplies need not be heavy between now and the first of January. Fixtures, enameled ware and pottery are still being absorbed in good proportion by master plumbers, for there are yet considerable finishing processes to be accomplished. Producers of these commodities report that shipments so far this month have been of good aggregate. Heating equipment is also accorded a prominent position in consumption demand.

The majority of manufacturers are in sufficient seasonal production as to enable them to offer unextended deliveries. Prices on all commodities covered by this report are generally firm, no revisions having been announced by makers during the past fortnight.

Soil Pipe

Construction in general is now at the point where but little soil pipe is wanted and wholesalers are consequently inactive in so far as their dispositions of this item are concerned. Foundry salesmen feel the lessened demand, for jobbers are endeavoring to reduce their holdings as the month draws to a close. Sources are amply equipped to ship on short notice, such condition reflecting the size of their reserve stocks rather than their production schedules, which on the whole have been somewhat diminished. Foundry quotations are unchanged.

Pipe—Brass, Steel and Wrought Iron

Even though activities in the heating field have become retarded in a small way, withdrawals by contractors from local distributing points continue to place steel pipe as a leading item in the group. Forwardings from mills are mostly for fill-in purposes but there are sporadic carload placements being made by wholesalers. Distributors' sales of wrought iron pipe are not especially extensive and consumption needs of brass pipe also show diminution, according to reports. Mill prices show strength, no changes having taken place since the last report. Deliveries in all cases are prompt.

Fittings

The close range methods of buying being exercised by wholesalers involve all classes of fittings, for while demand from piping contractors accounts for a fair seasonal output inventory taking is the primary thought when orders are placed with manufacturers and, consequently, commitments are usually for bolstering of depleted sizes only. The rate of production is commensurate with that of consumption but no difficulty is experienced in securing quick shipments from factories. Manufacturers have not reported any changes in their price schedules.

Enameled Ware

Major projects in this area continue to absorb enameled ware in quantities which offset whatever depreciation obtains in minor operation demand. This commodity, however, is most prominent, for the average wholesaler reports a turnover which is considered quite satisfactory for this time of year. There were awarded during the past several weeks a number of large size operations which entail prospects of active early year shipments for both makers and jobbers. Factories offer prompt shipments, but wholesalers, taking advantage of the well-assorted supplies at makers' local warehouses, are paring their stocks towards inventory taking levels. Makers' prices are unchanged.

Pottery

Requirements of the plumbing trade for this commodity are closely akin to those displayed for enameled ware. Orders placed in potters' hands are for immediate fill-in needs for jobbers' stocks, with the exception of some commitments by the latter for after the first of the year delivery. All in all, however, makers claim that their totals are well within their expectations for this season of the year. Staple stocks at sources are such as to permit expeditious forwardings. Pottery prices are firm, no changes having been reported on the part of makers.

Plumbers' Brass Goods

Little fresh business for stock purposes was forwarded to makers by jobbers during the past several weeks. In general, wholesalers are well equipped to care for the existing demand which is exemplified by their customers. A fair output of fixture trimmings is nevertheless reported. Some contracting for early year delivery is being consummated between factory salesmen and buyers for wholesale houses. This market, both from producing and distributing angles, maintains a comparatively steady and unchanged price level. Delivery delays are rare.

Range Boilers

Some spottiness attends plumbing contractors' requirements of range boilers. Makers' representatives in this territory, however, report fairly good sales of hot water storage systems and large size boilers. Wholesalers have sufficient stocks on hand to tide them over until the first of the year and in emergency can procure shipments from sources on short notice. No price changes have been announced by makers.

Boilers and Radiators

Demand for heating equipment, while still well sustained for this period of the year, showed some decline over the past several weeks. Makers report substantial forwardings from

their local warehouses, but are not in receipt of very many carload orders from distributors. Reserves at manufacturing points are well upkept so that little delay is experienced in forwardings. Makers' price sheets are being strictly adhered to, no changes having been effected.

SOUTHEAST

Business Maintains Moderate Pace—

Little improvement was had in plumbing and heating business in the Atlanta territory during the past fortnight, according to most jobbers and contractors interviewed. Though the sales volume was light, the market showed signs of improvement with the opening of December due to the increased interest in heating equipment. Encouraging inquiries were received by jobbers regarding near future orders and an optimistic market tone developed. Aside from heating equipment the other lines were in only "fair" demand, and factory commitments generally were reported as light. Wholesalers are adhering to the policy of small stocks of good assortment, sufficient to care for the immediate requirements of the contractors. There has been no announcement of any change in prices and quotations are holding to the current sheets. Construction work is not up to the volume predicted by some sellers sixty days ago, and residence building is at a low level. Architects and engineers in Atlanta have a number of major construction projects in the preliminary plan stage, but these jobs will not be ready for contractors until January. Generally, plumbing and heating contractors are more actively engaged in re-installation work.

Soil Pipe

No appreciable gain was experienced in soil pipe demand for the past two weeks. Master plumber requirements are steady with business holding at a normal seasonal level, according to most observers. Jobber commitments are being gradually reduced in volume in order to prepare for the annual inventory period. Sufficient stocks are being maintained to care for the immediate orders of contractors. Prices are holding at the current quotations and deliveries are promptly made.

Pipe—Brass, Steel and Wrought Iron

Brass pipe orders are still holding at a moderate level with sales slightly below those of the same period of last month. Wrought iron pipe volume continued at its November pace and steel pipe tonnage remained practically unchanged. A fairly good contractor demand for pipe was had for the past fortnight, it is reported. Mill orders were of not large proportions. A good assortment of pipe is being maintained by Atlanta jobbers and no difficulty was reported in securing supplies. No price change occurred since our last report.

Fittings

Jobbers report little new business in the fittings market for the past two weeks, and hence factory commitments were of moderate volume. Calls from contractors maintained at about the same level as last month. Wholesalers are keeping their stocks in size commensurate with demands from the trade. Price sheets have not been changed and producers are shipping materials on schedule time.

Enameled Ware

Most wholesalers report that their sales of enameled ware were only of a fair volume for this period of the year, although some sellers state that the market tone is showing signs of

The Stock Market

Range for Week Ending December 7, 1929†

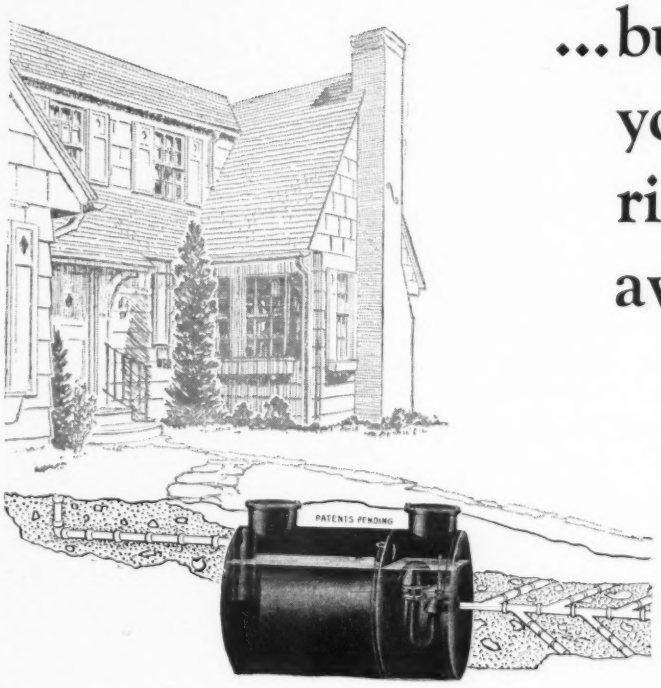
Par Value	1929 High	1929 Low		*	Weekly High	Weekly Low	Close
NP	223⅜	77	Air Reduction Sales Co.	A	142	126⅜	138⅜
NP	55⅜	28	American Rad. & Stand. San. Corp.	A	35⅝	32¾	32½
25	144⅜	60	American Rolling Mills Co.	A	92½	78¾	91
50	140	70	Anaconda Copper Mining Co.	A	80½	75¼	80½
NP	62	32	Bastian-Blessing Co.	C	37¼	34¾	37
NP	140¾	78¼	Bethlehem Steel Co., com.	A	97	88⅛	97
100	128	116⅝	Bethlehem Steel Co., pfd.	A	125	123	123
NP	55¼	16¼	Brunswick-Balke-Collender Co.	A	25	21½	23
NP	192⅜	50	A. M. Byers Co., com.	A & E	101¾	69	101¾
100	121¼	105	A. M. Byers Co., pfd.	A & E	109	109	109
100	127½	118	Century Electric Co., com.	F	118	118	118
50	4¾	2	Chicago Nipple Mfg. Co., "A"	B	3	3	3
50	1½	1	Chicago Nipple Mfg. Co., "B"	B	1	1	1
25	48	42	Crane Co., com.	C	44	44	44
100	119	112	Crane Co., pfd.	C	114	114	114
20	21	11½	Eagle-Picher Lead Co.	H	13¼	13	13
NP	35	11	Fairbanks Co., pfd.	A	32	30	30
NP	54⅜	29¾	Fairbanks, Morse & Co., com.	A	37½	36⅛	37½
100	110⅞	103	Fairbanks, Morse & Co., pfd.	A	105	104	105
NP	24¾	12	Greenfield Tap & Die Corp.	B	15¼	15¼	15¼
NP	38	23	Iron Fireman Mfg. Co.	C	26	25½	26
NP	242¾	90	Johns-Manville Corp., com.	A	136⅜	115	135½
100	123	117	Johns-Manville Corp., pfd.	A	121⅜	120¾	121⅜
100	126	117	Jones & Laughlin, pfd.	A & E	120	119	120
NP	113¼	59	Minneapolis-Honeywell Reg. Co., com.	A	76⅜	64½	76⅜
100	161	142½	Minneapolis-Honeywell Reg. Co., pfd.	A	161	161	161
NP	75	48	Modine Mfg. Co.	B & C	54	52½	54
NP	55½	21	Motor Wheel Corp.	A	27	26	27
NP	67½	30	F. E. Myers & Bro. Co., com.	A	41⅞	37½	40½
100	105	101½	F. E. Myers & Bro. Co., pfd.	G	102⅛	101½	102⅛
100	210	129⅛	National Lead Co., com.	A	153½	140	153½
100	141½	138	National Lead Co., pfd. "A"	A	139	138	139
100	122	116	National Lead Co., pfd. "B"	A	118½	116	116
NP	17	2	National Radiator Corp., com.	A	3¾	3	3
NP	41	5⅞	National Radiator Corp., pfd.	A	5⅞	5⅞	5⅞
5	31	23	Herman Nelson Corp.	B	31⅞	26½	31⅞
NP	92	69	Ohio Brass Co., "B"	B & G	69½	69½	69½
NP	31½	28½	Revere Copper & Brass, Inc., com.	A	30⅛	28½	28½
NP	78	75	Revere Copper & Brass, Inc., pfd. "A"	A	75	75	75
NP	19⅜	2⅛	Richmond Radiator Co., com.	B	4½	4½	4½
NP	36½	9	Richmond Radiator Co., pfd.	B	9	9	9
NP	44½	29	Ruud Mfg. Co.	C	29	29	29
NP	52¾	15	Spang, Chalfant & Co., com.	A	25⅜	23¼	25
100	97	89	Spang, Chalfant & Co., pfd.	A	92½	92½	92½
NP	39½	20	Time-O-Stat Controls Co., "A"	C	26	25½	26
NP	140	60	Union Carbide & Carbon Corp.	A	88	76¼	87
20	55⅞	12	U. S. Cast Iron P. & F. Co., com.	A	21½	19	20⅜
NP	19	15	U. S. Cast Iron P. & F. Co., 1st pfd.	A	16⅛	15¼	16
NP	20	18¼	U. S. Cast Iron P. & F. Co., 2nd pfd.	A	18½	18¼	18½
NP	62¼	35	U. S. Radiator Corp., com.	B & D	45½	45	45
100	100	100	U. S. Radiator Corp., pfd.	D	100	100	100
NP	65	15	U. S. Rubber Co., com.	A	30⅜	26½	27
100	92½	40⅛	U. S. Rubber Co., pfd.	A	55	48¼	48¼
100	261¾	150	U. S. Steel Corp., com.	A	183½	159	182¾
100	144¾	137	U. S. Steel Corp., pfd.	A	141½	140⅜	141¼
NP	22½	3	Universal Pipe & Radiator Co.	A	4¼	3¾	4
NP	49½	22	Walworth Co.	A	31⅞	29	31⅞
NP	35	10	Wayne Co., com.	B & C	12⅛	11⅜	11⅞
NP	49	28	Wayne Co., pfd.	B & C	30	29½	29½
100	110	93	Wheeling Steel Corp., com.	B	110	108	110
100	135½	131½	Wheeling Steel Corp., pfd. "A"	B	133	133	133
NP	29¾	16	Williams Oil-O-Matic Htg. Corp.	C	16	16	16
NP	143	91	Youngstown Sheet & Tube Co.	A	112½	103	111¾

*Where listed—

A—New York Stock Exchange
B—New York Curb Exchange
C—Chicago Stock Exchange
D—Detroit Stock Exchange
E—Pittsburgh Stock Exchange
F—St. Louis Stock Exchange
G—Cleveland Stock Exchange
H—Cincinnati Stock Exchange

†If there is no trading during the current week, range represents last week recorded.

Maybe not a Gold Mine



...but in the suburbs you will find rich reward awaiting—

San-Equip Septic Systems are big profit winners

Here's a golden opportunity for plumbing dealers! A chance to build up a substantial "extra" business, with extra profits—out in the suburbs beyond the sewer line . . . Sell and install San-Equip, the Improved Septic System.

San-Equips are scientifically constructed after a patented, two-chamber design incorporating numerous improved features. Rugged in structure throughout every detail, each system will endure indefinitely and give care-free service.

The sale of each San-Equip System is only the *first* profit. Your services are also required—and then there is the inevitable demand for new fixtures and fittings . . . Here's a real business builder!

Sold at moderate cost and easy and safe to install, San-Equips find an ever ready market. And the profits are liberal indeed . . . But let us explain more fully. Write for free Plan Sheets.

CHEMICAL TOILET CORPORATION

918 E. Brighton Avenue :: Syracuse, New York

The Metal Market

	Dec. 10	Average Oct., 1929	Average Aug., 1929	Average 1928
PIG IRON—				
No. 2 foundry, Chicago	$20.00	$20.00	$20.00	$18.54
PLATES AND SHEETS—				
Steel boiler plates, Pittsburgh, per lb.	1.90c	1.95c	1.95c	1.87c
*Blue annealed sheets, No. 13, Pittsburgh, per lb.	2.35c	2.35c	2.35c	2.03c
Black sheets, No. 24, Pittsburgh, per lb.	2.75c	2.80c	2.85c	2.75c
Galvanized sheets, No. 24, Pittsburgh, per lb.	3.50c	3.50c	3.55c	3.50c
TIN—				
Straits tin	40c			
LEAD—				
Chicago	6.25c			

The Old Metal Market
Dealers' Buying Prices

	Per lb.		Per lb.
Aluminum clippings	14½c	Copper, light	12 c
Block tin	35 c	Copper, uncrucibled wire	13¼c
Brass, light	7 c	Faucets and valves	8½c
Brass, heavy mixed	7¾c	Lead, heavy	5½c
Brass, red	11 c	Solder Joints	8½c
Copper, crucible	14½c		

NOTE: Prices are those quoted on Tuesday of this week.
* Comparisons are with old blue annealed base, No. 10.

improvement with the opening of December. Contractors are fairly well engaged in re-installation and finishing work, according to most jobbers. Factory shipments are of a steady nature and prices remained firm and unchanged in the Atlanta area.

Pottery

While pottery sales have shown some signs of improvement at times, yet the market in general has been rather spotty. Residence construction, which has fallen off considerably, has affected the demand for pottery, it is stated. Most wholesalers are replacing stocks with a view of keeping supplies just sufficient to care for the immediate requirements of the contractors. Contractors report no difficulty in securing staple items when ordered and no change in prices has been announced.

Plumbers' Brass Goods

Brass goods orders continued mainly in small quantities, though some new large orders were placed. An encouraging amount of inquiries were received regarding near-future orders, according to some sellers interviewed, but as a whole business continued at a rather moderate rate. Most jobbers have fair stocks of tubular items and are ordering replacements only as needed. The market is reported as unchanged at current price sheets. No delays in shipping were reported.

Range Boilers

Range boiler sales were reported as generally light over the territory, with little new business developing since our last report. Distributors have good stocks for their immediate needs, but factory commitments are light, indicating lack of interest in keeping large stocks on hand. Factory prices were not changed and shipments are made with promptness.

Boilers and Radiators

Most jobbers report an increase of interest in boiler and radiator equipment, and contractor demands were larger at the opening of December. The heating season is getting well under way in the Atlanta area and most sellers are of the opinion that business will be rather brisk for the next several days. Producers are busy meeting demands from the jobbers for stock replacements. Stocks are of sufficient size to care for the immediate requirements of the contractor and no delays in filling orders have been reported. Makers' price sheets are firm at current prices.

PACIFIC COAST

Coast Business Is Light—

The closing month of the year finds Coast business only moderately active, with the demand for material better in some sections than in others. Stocks in distributors' hands, while not large, are of sufficient volume to insure prompt shipment of orders received and merchandise of all classes can be secured by distributors promptly. Distributors' prices to the trade, while varying somewhat in the different centers, are generally firm.

Soil Pipe

The demand for soil pipe continues to be in moderate volume although about normal for this period of the year. Distributors' stocks are not very heavy although sufficient to take care of the trade's current needs. Prices remain unchanged.

Pipe—Steel and Wrought Iron

Current business in both steel and wrought iron pipe continues to be of a moderate nature with the trade purchasing mostly for immediate requirements only and very few inquiries out for future needs. Distributors of both of these commodities are carrying well balanced stocks and prompt shipment is being made on all orders as received. Prices remain unchanged.

Fittings

The demand for cast iron screwed, malleable and drainage fittings continues to be of a moderate nature, the trade seeming to purchase only in small lots for immediate requirements or to sort up stocks. Distributors as a rule are carrying well assorted although not heavy stocks and depending upon factories and manufacturers' warehouses for prompt shipment of orders. Distributors' prices to the trade on fittings remain unchanged.

Enameled Ware

The demand for enameled ware is of a moderate nature, most of the purchasing being for immediate requirements only which are not very heavy at present although about normal for this period of the year. Distributors are carrying stocks sufficient to take care of the trade's present needs without delay and can secure prompt shipment from Coast manufacturers and manufacturers' warehouses on all classes of ware. Prices remain unchanged.

Pottery

Recent weeks have shown little change in the pottery market, the demand at present being only of a moderate nature, the trade purchasing only such ware as is needed to complete contracts previously secured. Distributors are carrying stocks sufficient to take care of the trade's immediate needs without delay and can secure if necessary prompt shipment from Coast potteries and manufacturers' warehouses. Prices remain unchanged.

Plumbers' Brass Goods

The demand for plumbers' brass as a whole is being maintained in a satisfactory volume which shows little change from week to week. Distributors are carrying normal stocks for this period of the year and are able to make prompt shipments of the trade's needs without delay.

Why Not Sell MYERS SELF-OILING POWER PUMPS?

A REGISTERED TRADE NAME

The Line With More Sales Opportunities

FIG. 2426

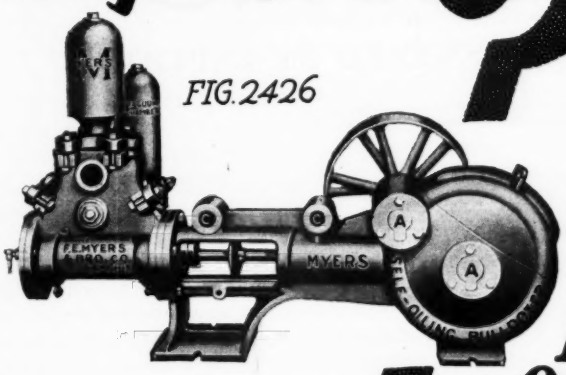


FIG. 2455

FIG. 2527

FIG. 2551

FIG. 2549

YOUR power pump business rests on the line of power pumps you have to offer to your trade. Dealers the land over have found it to their advantage to reach out in every direction for more power pump business with Myers Self-Oiling Power Pumps.

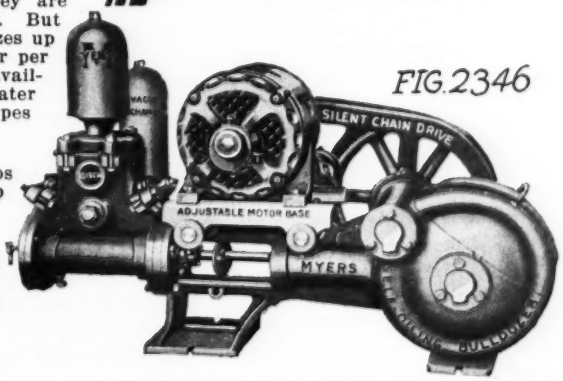
A home owner living beyond the web of city water mains may be a live prospect for a water system—a nearby farmer may be looking around for suitable equipment to modernize his home and farm buildings with running water—A centralized school, a rural church, a service station, a creamery or dairy or any one of a hundred other prospects may be ready and waiting for someone to sell them modern water facilities.

Myers Self-Oiling Power Pumps and Water Systems open a broad highway to this business—a highway that is paved with superior quality and protected at every turn with national publicity—a highway with leads in every direction permitting wider sales activities and greater returns than can possibly be obtained with other lines restricted to but a few types.

Shown here are six leading styles. They are popular because they are the sizes in greatest demand. But other styles of equal merit in sizes up to ten thousand gallons of water per hour are equally successful and available for those who use more water than can be supplied by smaller types of pumps.

Stock Myers Self-Oiling Power Pumps and plug the gaps in your power pump business. Write or wire.

FIG. 2346



THE F.E. MYERS & BRO. CO.
ASHLAND, OHIO.
ASHLAND PUMP AND HAY TOOL WORKS

Take Off Your Hat To The MYERS
PUMPS · WATER SYSTEMS · HAY TOOLS · DOOR HANGERS

PUMPS FOR EVERY PURPOSE - WATER SYSTEMS - HAY TOOLS - DOOR HANGERS

QUESTIONS

ASKED BY READERS AND ANSWERED BY EXPERTS

A Problem in Pump and Tank Control

Editor, DOMESTIC ENGINEERING: What kind of a pump and tank control would you recommend to be used on a city pumping system, where the pump is located one-half mile from an elevated steel tank, which is on the top of a hill, with 65 lb. of pressure when the tank is full? We have been using an electric alarm, attached to the overflow of the tank, which works well in summer. We have had considerable trouble with it this winter, however, on account of the overflow freezing up.

We have tried to use a pressure regulator with gauge and switch of one on make-up, but found that it did not work satisfactorily on account of great surges in our mains, caused by the double-acting pump which is used to pump our water.

Would like to hear what others have to say in regard to tank and pump controls.

Iowa. K. W. J.

In correspondent's letter we note that a gauge type pressure regulator has been already tried, with unsatisfactory results. We believe the fault was in this equipment.

Our advice would be to use a surge tank and needle valve to cut the pressure regulator off from the pulsation in the discharge line. We think that if such a tank is installed, of the size of an ordinary small range boiler, using the needle valve and perhaps a coil of small copper pipe for connecting the pressure gauge and surge tank, the difficulty will be at an end. Probably an expansion tank would be large enough for the work.

Another suggestion is to use a float switch inside the tank. When the water rises to a certain elevation within the tank, the float switch automatically stops the motor. The motor remains shut off until the water in the tank has dropped to a certain level, the float switch of course dropping, due to the decrease in the supply of water. When the float switch has dropped to this certain level, it automatically turns the motor on again, and then upon reaching the maximum height in the tank, it again shuts off.

◆

Concerning Brine in Septic Tanks

Editor, DOMESTIC ENGINEERING:—It would please us much to get some information about septic tanks.

We have had some discussion concerning the effect of running the waste from a water softener into a septic tank, and it is my belief that the briny water would be destructive to the bacteria.

It has also been contended that too much soap from laundry tubs would have the same effect.

Indiana. G. W. W.

While the effect of passing brine from a water softener through a septic tank depends very largely upon the proportion of the volume of brine to the size of the tank, it is poor practice and will generally result in trouble when the volume of brine discharged is large. The brine, in such cases, acts as a preservative, slowing up, or even stopping, bacterial action. There is no reason for passing such matter through a tank, as, excepting the dilution obtained, no treatment results. We would suggest a separate final disposal system, by-passing the brine around the tank and using the same final disposal method, such as sub-surface tile lines on leaching cesspools. However, even in such cases the brine may interfere and cause nuisance and trouble.

In regard to soapy wastes from laundry tubs, we do not think that the wastes usually resulting from ordinary domestic washing would be likely to cause trouble. Where the amount of washing is excessive and much soap is used, there may be interference. In the case of laundries, treatment of the waste is not generally possible with septic tanks, and should not be attempted, except in unusually favorable cases, as where there is a large volume of diluting water available.

In other words, ordinary laundry wastes from the average home may be discharged into the home septic tank, but when the quantity of the wastes become very large, other treatment should be provided. Often, where the laundry tubs are in the cellar, it will pay to serve them with a deep leaching cesspool, and set the septic tank serving the rest of the house as near the ground surface as possible, which is always desirable.

◆

More About the Cost of Producing Heat

Editor, DOMESTIC ENGINEERING:—In a recent issue you had a very interesting article on the "Cost of Producing Heat."

Apparently the published table is O. K., but the comparative oil prices are not applicable to New York City.

It would be interesting if we could have a comparison of the 19- to 23-degree oil which we buy in this market at 6 cents, with the 28- to 32-degree oil at 7½ cents, showing how you arrive at resultant figures using Table No. 1.

New York. M. F. A.

Owing to the fact that the variation in B. t. u. per gallon of fuel oil is relatively small in comparison to the total B. t. u. per gallon the table referred to (published on page 70 in the August 24 issue) was arranged to read in total B. t. u. content per gallon for every 5,000 B. t. u. decrease from 160,000 B. t. u. per gallon down to 130,000 B. t. u. per gallon. This constitutes a variation of about 3 per cent between each column. When condi-

tions fall between columns the nearest column may be used or, if greater accuracy is desired, the values may be interpolated.

Thus to solve the correspondent's question by the use of the table it is only necessary to note that 19- to 23-degree oil would fall about midway between the column headed "150,000 B. t. u. per gallon" (which is equivalent to 17-degree oil) and the column headed "145,000 B. t. u. per gallon" which is equivalent to 25-degree oil, as stated at the bottom of the table. Consequently, the cost of 19- to 23-degree oil will range about half way between the amounts quoted in the two columns. Thus, for $0.06 oil, the figures in the two columns mentioned are respectively $0.040 and $0.042 and for an oil falling between these two columns in heat content the figure would be

$$\frac{0.40 + 0.42}{2} = 0.41$$

Similar procedure would be employed for the 28- to 32-degree oil offered for comparison by the correspondent, thus falling between the columns headed 145,000 B. t. u. per gallon and 140,000 B. t. u. per gallon which at a rate of $.07½ per gallon shows the cost to be respectively 0.52 and 0.54 per 100,000 B. t. u. Averaging this as before, it is found that the figure will be

$$\frac{0.52 + 0.54}{2} = 0.53$$

From this it will be seen that with a constant boiler efficiency of 100 per cent in each case the cost of producing steam would be $0.41 against $0.53 or

$$\frac{0.53 - 0.41}{0.41} = \frac{.012}{.041} =$$

29 per cent greater for 28- to 32-degree oil at the prices of the two grades of oil as quoted by the correspondent, and therefore, it would be an economy to employ 19- to 23-degree oil (all other factors being equal) over the use of 28- to 32-degree oil. Of course, a change in the price paid for either of the two grades of oil would immediately reflect itelf in the results by finding the new price in the table and obtaining a new comparison based on the changed conditions.

Radiator Heat for a Traveling Tent Show

(Continued from Page 77)

outside. When the tent was thoroughly warm it made the sleet drop off the roof. Since steam could not be depended upon until about 5:30 p. m., because up until that time the milk company needed its entire output for its pasteurization plant, only about 2½ hours were available in which to heat the tent before the show opened.

The radiators were only loaned and were, in fact, old radiators which had been taken out of a wrecked building. The material was taken back at 50 per cent charging labor for wrecking so that the total cost ran about $450. It required three days' work for three men to set up the plant.

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The best hard rubber seat made. Approved by leading architects and builders throughout the country.

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Unconditionally guaranteed for five years. The seat that banished open joints. No mortise holes, plugs or fillings of any kind.

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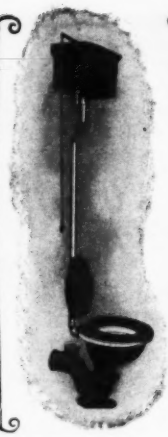
High Tank Combination



Has large capacity, the tank being of five gallon size. Just the thing for factories and basements. N. P. Brass Flush Pipe furnished when specified.

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BALTIMORE :: MARYLAND

The CONVERTIBLE AUTOMATIC Water Softener

SEND FOR CATALOGS
on DURO'S NEW LINE of
CONVERTIBLE
Water Systems *and*
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The DUROMATIC Water System

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DURO
Water Systems - Water Softeners

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Triple Wear Wrenches

You don't have to buy new wrenches so often if you buy Warnock Triple Wear Wrenches. You don't have to worry about a Warnock losing its grip when you've got it on the pipe—it won't!

WARNOCK MFG. CO.
Worcester, Mass.

You would

not think of missing your daily paper, yet it does not begin to help you as your business paper, so why not spend a minute to send in your subscription. You will soon realize the tremendous help you have been doing without.

Adopts New Communication Method

The New Jersey State Association of Master Plumbers has adopted a bulletin form of communication with the local organizations, which seemingly is working out to the satisfaction of State President A. C. Krieger and State Secretary William T. J. Orriss, who are its sponsors. The bulletin, in the form of a folder, is sent out the first of each month and sets forth the program of meetings and other activities for the following thirty days.

With it there is mailed a service call slip which is a part of the state budget control system. Local secretaries are asked to indicate on the slip their need for the services of Field Secretary Edward B. Moore and return it to Secretary Orriss. The publishing of a roster of the membership is also a part of the plan. Besides the listing of the officers with their addresses, each of the committees is included, with names and address of the membership of each local together with the date and place of meetings.

◆

Join Boston H. & P. Contractors' Association

The Heating and Piping Contractors Boston Association, Inc., Boston, Mass., has added three new members in the recent past, one regular member and two associate members. The contractor member is the R. B. Crocker Co., 107 Massachusetts avenue, Boston, while the associate members are the Reading Iron Co., Reading, Pa., and Spang, Chalfant & Co., Inc., Pittsburgh, Pa. The association now has 29 contractor members and 14 associate members, the latter class being made up of manufacturers and wholesalers of heating equipment.

◆

Will Hold Apprenticeship Conference

The Milwaukee apprenticeship conference will be held at the Hotel Pfister, Milwaukee, Wis., on January 13, just preceding the Wisconsin Master Plumbers' Association convention which will be held January 14 to 16. Members of the apprenticeship group include master plumbers and vocational instructors.

Top row: H. B. Schulte of Joplin, Mo.; R. C. Brenner of Lansing Supply Co., Lansing, Mich., and Mrs. Brenner; John G. Lewis of Kansas City, Mo. Bottom row: T. M. Lynch and E. L. Kageman, both of Chicago Pottery Co., Chicago, Ill.; R. O. Stickles of Hedges & Bro., Newark, N. J.; Jungman Ellis of New York City; John A. Khym of Chicago. Photos taken at Buffalo convention, N. A. M. P.

The EverHot Heater Bowling Team made up of Detroit master plumbers. Standing, from left to right, are: Anthony Sudz, captain; C. A. Burton, Walter I. Vallett of EverHot Heater Co., manager; Otto Goetz and M. L. Schultz. Seated: C. A. Schultz and George O. Bergomoser

Indiana Association Holds Zone Meetings

The Indiana Society of Sanitary Engineers has recently held a series of zone meetings in several key cities of the state, which has been instrumental in bringing the members of the local organizations into closer co-operation within their own group as well as with the state society. The successful consummation of these meetings has been a direct result of the unselfish effort put forth by Arthur Lahr, president of the Indiana state association.

The meetings were held as follows: districts 1 and 2, November 22, West Baden Springs hotel, West Baden; district 4, November 20, Roberts hotel, Muncie; district 5, November 21, Frances hotel, Kokomo; district 6, November 19, Keenan hotel, Ft. Wayne; and district 7, November 18, Spaulding hotel, Michigan City.

E. L. Flentje, manager of the Plumbing and Heating Industries Bureau, Chicago, accompanied by President Lahr, devoted an entire week of his time to attending these meetings.

◆

Atlanta Inspector Retires

J. A. G. Beach, veteran chief plumbing inspector of Atlanta, Ga., has recently been retired on a pension, after thirty years service. E. G. Quarles has been appointed chief plumbing inspector to succeed Mr. Beach.

◆

Will Appoint Nominating Committee

The Milwaukee Master Plumbers' Association, Milwaukee, Wis., will appoint a nominating committee at its first December meeting, Frank King, executive secretary, has announced. Officers of the association for the ensuing year will be elected at the second December meeting. The Milwaukee Master Plumbers' Association meets regularly on the first and third Tuesday of every month.

◆

Development League in New Quarters

The Plumbing and Heating Development League of Philadelphia, Pa., formerly located at 1321 Arch street, has been removed to the American Radiator building, 2212 Walnut street.

SEMLER FITTINGS

The reason so many drainage jobs are forgotten is because they are equipped with SEMLER Fittings. With Semler Fittings on the job there is no occasion to remember them.

Ask your jobber to supply you

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A FEW DOLLARS MORE

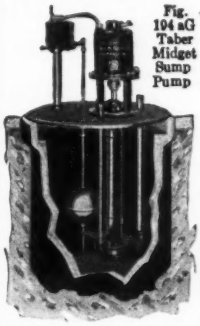

Fig. 194 aG Taber Midget Sump Pump

YOU sell, or ought to sell, satisfactory cellar drainage . . . protection from water damage to merchandise or goods stored in the basement . . . when you sell a sump pump installation.

Why permit a few dollars to stand in the way of 25 years of satisfactory service rendered by the Taber Midget Sump Pump? Write for description and prices. See page 909, Domestic Engineering Catalog.

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TABER PUMP CO. *Est 1859*

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SIMPLIFIED VAPOR HEAT

INVESTIGATE the profit possibilities of the Hutchison System of Vapor Heating. Write us for complete information showing how easily this system can be constructed with ONLY FOUR SPECIAL PARTS.

Write us today!

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HUTCHISON SYSTEM

FITZGIBBONS the STEEL BOILER with fast pick-up

which makes it especially satisfactory and profitable in OIL BURNING service which demands frequent pick-up of the heating load.

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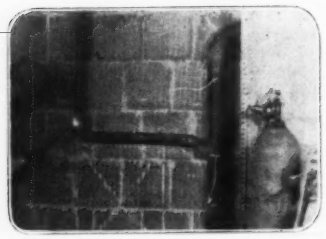
GENERAL CONTRACTOR ARCHITECT HEATING CONTRACTOR FINANCIER

What About a Change in the Plans --- Lowering the Entire Welded Pipe Line for Instance?



Cutting the Pipe

Making the New Opening

Completing the Job

THE ARCHITECT: Changes in plans are sometimes necessary even when a big portion of the job of building is completed. If we were to weld pipe and then find that it was, for instance, necessary to lower the entire line, how would we be able to do it with welded pipe?

THE HEATING CONTRACTOR: That would be easy. It is just another advantage of pipe welding.

Let us assume that it would be necessary to lower the line one foot. The operator can easily cut the pipe from its installed position, cut a new opening where required, and weld the connection in place. No other tools than his REGO welding and cutting torches are necessary. The completed revision is just as strong, permanent and leakproof as the original pipe.

THE FINANCIER: Is that a time absorbing operation?

THE HEATING CONTRACTOR: Not at all. It is just as simple as it sounds. There is no new material to buy and with REGO equipment, a welder can do each operation in just a few minutes.

THE GENERAL CONTRACTOR: That sounds interesting, Morgan, and I can readily appreciate how easily it can be done.

The Bastian-Blessing Co. will be glad to send you the complete time and money saving data on REGO pipe welding, without obligation. Write for it at once. Or, ask your jobber.

The BASTIAN-BLESSING CO.
240 E. Ontario Street Chicago, Illinois

Peninsula Association Elects Officers

The Peninsula Master Plumbers & Heating Contractors Association of Newport News, Va., recently elected its officers for the 1929-30 season. J. A. Maclay was elected president, E. J. Swanson, vice president and A. Morris, secretary and treasurer.

◆

Racine, Wis., Master Speaks Over Radio

Harry Morris, one of the first master plumbers to engage in business in Racine, Wis., recently spoke over the radio in that city, giving the laymen a glance into the early history of the plumbing business. Mr. Morris reviewed the inadequate plumbing equipment that existed as far back as 1882 and then compared those conditions with present progress.

◆

Wilmington Association Elects Officers

The Master Plumbers' Association of Wilmington, Del., at a meeting held Tuesday, November 19, elected its officers for the ensuing year. James P. Ponsell was elected president; Harry B. Triggs, vice president; James Wharry, treasurer; while Frank H. Escott, George A. Barnett, F. Gawthrop, Warren L. Ridgway and William W. Thompson were elected directors.

◆

John F. Gustafson Dies

John F. Gustafson, president and treasurer of John Gustafson & Son Co., plumbing and heating contractors of Worcester, Mass., died recently after a long illness. Mr. Gustafson, who was in his 67th year, was born in Sweden and settled in Worcester in 1892. He was a member of First Swedish Baptist church, serving as trustee and Sunday school superintendent, a Past Noble Grand of Thula Lodge, I. O. O. F., past president of John Erickson lodge, V. O. Scandia society.

Top picture: Mrs. M. W. Hobin and her five children; Miss H. Hobin. Bottom picture: Some of the women and children attending the outing of the South Bergen, N. J., Master Plumbers' Association

California Golfers Play at Capuchino

The Plumbing and Heating Club of San Francisco, Calif., and Bay Cities played its November tournament at the Capuchino Golf and Country club course, near San Francisco. Before the tournament was finished, the players found that while the road to the golfer's purgatory may be paved with good intentions, the bottom of the deep canyon on the 16th is literally paved with golf balls, and they added a little paving material themselves. The canyon is known as a mental hazard, but more than one foursome lost from two to four balls in the depths.

Class "A" honors went to Donald O'Hair, with a 75, while Jack Camp and William Turner tied in class B, and will play off the deadlock at the December meet. E. J. Kraus and J. W. Forsythe won first place in class "C" and "D," respectively.

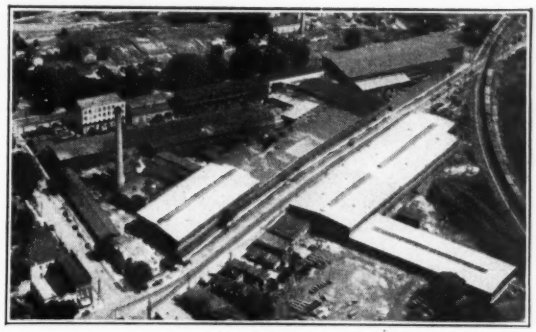
Among the cards turned in, the scores were as follows:

	G.	H.	N.		G.	H.	N.
R. Allmon	95	20	75	C. C. Anderson	99	18	81
J. Camp	95	22	73	L. L. Durkee	104	22	82
H. W. Finch	105	19	86	Mr. Goldberg	105	23	82
M. Henderson	116	29	87	E. Heymans	108	29	79
C. W. Higgins	107	32	75	E. J. Kraus	104	27	77
R. B. Lees	102	18	84	L. Logsdon	119	31	88
J. J. McLeod	98	21	77	O. O'Hair	90	15	75
R. P. Olsen	123	40	83	F. A. Oelschlagel	113	23	90
L. R. Penhallegon	100	21	79	R. Roney	113	36	77
W. H. Rainwater	113	25	88	W. A. Rowe	96	18	78
Wm. Turner	96	23	73	D. Turner	126	22	104
H. P. Wilson	96	17	79	J. V. Young	95	14	81
C. J. McCarthy	104	22	82	J. W. Forsythe	107	35	72

Guest scores:

E. Roberts	111	H. Brown	102
H. M. Callahan	103	A. L. Gillespie	117

Top row: R. V. Benton and William Ford, both of Mueller Co., Decatur, Ill.; A. R. Johnson of Hayes Mfg. Co., Erie, Pa.; Leo Purcell of Erie, Pa.; A. A. Ahlff of Spencer Heater Co., Buffalo, N. Y. Middle row: Mr. and Mrs. H. E. Zimmer, Mrs. and Mr. C. O. Sponseller, all of Canton, Ohio. Bottom row: John Doherty, E. P. Crotty, John Woelfel, J. A. Murphy, M. R. Manley and Robert Carroll, all of Cincinnati, Ohio; K. C. Weber, Crane Co., Buffalo, N. Y.; G. E. Doench of Cincinnati. Photos taken at Buffalo convention, N. A. M. P.



It's a Small Picture But It Tells a Big Story!

But at that, the story is not so big for Bowlus Jewel Auto Pneu Matic Water Closets, but what it is repeated in hundreds of cases all over America. At least, it's not an unusual story of satisfaction in every detail in this big eastern manufacturing plant.*

This great industrial plant is fully equipped with Bowlus Jewel Auto-Pneu Matic Water Closets, the efficiency of which is attested to by the management of this company.*

Bowlus Jewel Auto-Pneu Matic Water Closets

are capable of the same performance in every installation you put them.

If you aren't fully acquainted with the Bowlus Jewel line, ask your jobber today for the particulars, or, write us direct.

THE BOWLUS MFG. CO.
Springfield Ohio

*The name of the plant pictured above and the data concerning the installations in it will be furnished upon request.

Woman's Page

Now that the Christmas season is here, many of the auxiliaries are arranging for Christmas parties and various kinds of festivities for the children. Everyone likes to read about holiday good times, and if each organization will send in an account of its plans for the holidays, these items will be of much interest to all. No doubt each Christmas program will contain something different from every other program, and members and officers of the auxiliaries will be looking for suggestions for next year's parties. Secretaries can help each other by sending in news of their Christmas celebrations for publication on this page.

Detroit Auxiliary Has Successful Bazaar

The Women's Auxiliary to the Master Plumbers' Association of Detroit, Mich., held its annual dinner-dance and bazaar at the West Side clubroom on November 19. The affair was a great success. The attendance of master plumbers, their families and friends, was the largest the auxiliary has had at any bazaar. After a substantial

A Message to Auxiliary Members

By Mrs. O. A. Waskow, of Milwaukee, Wis., assistant auditor to the Women's Auxiliary to the National Association of Master Plumbers.

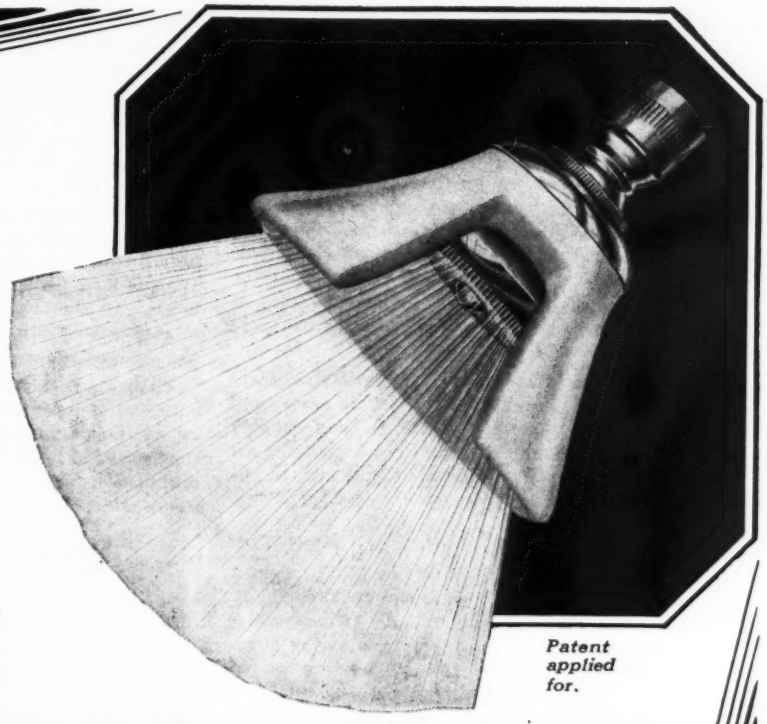
It was at the West Baden convention in 1924 that I attended my first auxiliary meeting. The ladies in the Milwaukee delegation became very much interested in the purpose of the auxiliary and its possibilities as a medium to promote the social acquaintance among the families within the association group. Two years later, after our return from the Louisville convention, the ladies of the Milwaukee delegation decided to organize an auxiliary. Our efforts met with such ready response that we succeeded in perfecting a permanent organization, which has grown to where it is now one of the largest locals in membership in the national auxiliary.

The Milwaukee auxiliary has, during the short time of its existence, become accustomed to a program of activities that are looked forward to by the entire association group with keen interest and anticipation. Our dinner dances and picnics, because of their periodic occurrence, have developed an intimate acquaintance among old and young to the extent that our social affairs have taken on the atmosphere of a family reunion. We have received ready recognition as an organized body, and were invited by our larger establishments to visit their plants for purposes of inspection.

Because of the success of the Milwaukee auxiliary, we were enabled to give encouragement in the formation of auxiliaries in all of the cities in the state where local associations exist. Following the organization of the Milwaukee auxiliary, Racine, La-Crosse and Green Bay became organized, and at the last convention of the state association we succeeded in organizing the state auxiliary. During the present year, two additional auxiliaries have been organized, Eau Claire and Chippewa Falls.

When our auxiliary was organized, the Milwaukee ladies honored me with the vice presidency, and at the last election entrusted me with the responsibilities of the office of president. I have watched the growth of the Milwaukee auxiliary with much interest and satisfaction, and have derived much comfort from the realization that our efforts were instrumental in aiding the development of a greatly enhanced social atmosphere extending throughout the industry within the state.

I feel grateful to our national president, Mrs. McAndrew, for her recognition of the Milwaukee auxiliary in conferring upon me the honor of appointment as assistant auditor to Mrs. Kelly. I shall endeavor to lend her every help within my ability. I wish to assure the president, Mrs. McAndrew, that our members will give their full support towards her efforts to make her administration a successful one, and that we will contribute our efforts toward a realization of her slogan, "Over the top at Boston." I hope I shall have the privilege of meeting all our officers and a large delegation of members at Boston.



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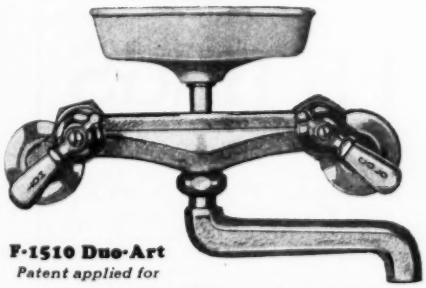
The three prime requisites for any product that hopes to figure in a successful plumbing bid—quality, reasonable price and allowance for a satisfactory margin of profit—these are incorporated in the Superior Shower Head.

Consider these features: ample spray with 50% of the water generally used—no holes to clog—cleaned by removing one screw—adjusted to fine or coarse spray by the turn of a screw—48 styles all with a standard spray disc—no annoying after-drip.

"The Superior" has all these advantages, with their powerful consumer appeal, and yet it is priced as low as 55 cents.

It is little wonder that "The Superior" has figured in many a successful contract. It will earn profits for you too. A request on your letterhead will bring detailed information.

SPECIAL



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Hammered Milchrome finish swing spout faucet with white china soap dish. $5.25.

55 CENTS AND UP

48 styles; nickel-plated; milchrome-plated; china bell in white, orchid, green, brown and black.

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dinner cooked and served by members, the room was cleared for dancing, which was enjoyed until midnight to the strains of a very delightful orchestra supplied by Mr. Deppman and his assistants. The bazaar was a success financially as well as socially. Mrs. Meier, who was responsible for it, deserves great credit. Mrs. Meier was assisted by Mrs. E. Ziegler. The booth was beautifully decorated and well patronized by the company. It was the work of many weeks to prepare the many articles which were on display, and nearly all the members helped in this work. A very pretty set of china was also sold for the benefit of the auxiliary. Altogether the treasury was substantially enriched, so the auxiliary is ready for any emergencies, and for the usual gifts made to the needy at Christmas time.

The auxiliary is planning for a real Christmas party and Christmas tree on December 19. The party will be especially for the children, who have been looking forward to the party since this time last year. Last year's party was called off because of an epidemic, so the children are very eager for the party this year.

Schenectady Auxiliary Holds Card Party

The Women's Auxiliary of Schenectady, N. Y., held a very successful card party at the home of Mrs. B. M. Fraking on the evening of November 19. Fifteen tables were in progress, with friends and husbands of the members present. Sandwiches, cake and coffee were served and everyone enjoyed a social hour. The auxiliary is planning to hold a series of these card parties, of which this was the second, for the purpose of raising funds for the treasury. Regular meetings are to be held every month at the homes of members, until a suitable club room is available.

Salt Lake City Auxiliary Sponsors Essay Contest

From Mrs. J. H. Reeve, corresponding secretary, we learn that the Salt Lake City, Utah, Women's Auxiliary meets the first Wednesday of each month at 1:00 o'clock for a delightful luncheon and spends the afternoon playing cards. The first meeting of the season was held in September at the home of Mrs. R. Sneddon, president. The next meeting, in October, was held at the home of Mrs. Parley James, and on Wednesday, November 6, Mrs. A. E. Hurd acted as hostess. The auxiliary has received permission from the school board of its city to give a prize of $50 for an essay on "Sanitation in the Home," in each of the two largest high schools. The first prize in each school will be $25, the second $15 and the third $10. The best essays will be read over the radio.

Plans for a holiday party, to be given in conjunction with the members of the ladies' auxiliary, were discussed at the recent meeting of the master plumbers' association of Salt Lake City, Utah. An entertainment committee, consisting of Joseph F. Carthey, John Reeve and George M. Whitely, was appointed by President James.

Mrs. Lawrence Castin, Mrs. William Boyne, Mrs. Thomas Grieves, all of Buffalo, N. Y. Photo taken at a meet of the Tri-State Golf Association

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Replacement Ballcock

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Double Satisfaction —

A good repair job brings double satisfaction to your customer. A noisy ballcock, for instance, causes much annoyance. When you are called in to replace it, the customer is happy that the noise has stopped and glad that you did the trick. He makes a comparison not always possible in new work—and he feels friendly toward you.

The best way to keep up that good feeling is to install an M-VB Replacement Ballcock No. 1. It not only does the trick but keeps on operating "Quiet as a Mouse." It gives double satisfaction and satisfied customers are a good kind to have.

See your wholesaler about M-VB Replacement Ballcock No. 1.

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Christmas Message from the National President

The following Christmas message has been received from Mrs. W. E. McAndrew, of Tampa, Fla., president of the Women's Auxiliary to the National Association of Master Plumbers.

Editor.

The hands of the clock of Father Time have circled the dial of another year and Christmas is again with us bringing "Peace on Earth, Good Will Toward Men." At no season of the year do we feel the love in our hearts for our fellowman as we do at Christmas.

The past year has been one of loving loyal service on the part of our auxiliary members, who have learned the value of co-operation and that co-operation is the life of an organization.

May I quote here the words of "Burgess," who said:

"Give to the world the best you have and the best will come back to you."

I wish that every auxiliary member would take this home to herself in this New Year that is about to unfold itself to us. With this beautiful thought in the minds of our members we should be better able to keep step with the progress of modern times and help to bring about conditions that will be helpful to ourselves, our industry and to the world.

Your president wishes to extend best Christmas wishes and to thank the women of the National Auxiliary and the trade papers for their splendid co-operation during the past few months. May your Christmas be a happy one and the New Year bring prosperity.

Fairfield Auxiliary Holds Meeting

The Fairfield, Conn., Women's Auxiliary meets every fourth Thursday of the month, in conjunction with the master plumbers' meeting. Dinner is served at 7:30 p. m. at a different place each month, to both the women's auxiliary and the master plumbers. Following this each association holds its own meeting in separate rooms. The last meeting was held in Westport, Conn., at the Sound View Inn. Several guests were present at this meeting, among those being Mrs. Steustream and Mrs. Robert Rock of the Bridgeport Wampa club; Mrs. A. A. Mills and Mrs. Hjerpe of the New Britain Wampa club. In Connecticut the local auxiliaries have adopted the name "Wampa," from Women's Auxiliary Master Plumbers' Association.

Oklahoma City Auxiliary Holds Meeting

The Women's Auxiliary to the Master Plumbers' Association of Oklahoma City, Okla., held its regular November meeting at the home of the state treasurer, Mrs. J. J. Cosgrove, 707 West Thirty-second street. The auxiliary consists of fifteen members, and its social evenings are devoted to bridge. Regular meetings, well attended by the members, are held the third Monday of each month. The master plumbers always join in at the close of the evening, and refreshments are served.

South Side Auxiliary Plans to Give Dinner

A very lovely luncheon was served at the regular meeting of the South Side Women's Auxiliary, which was held on November 6 at the Hotel Aragon, Chicago, Ill. Following this the business session was held. One of the subjects under discussion was a report by Mrs. Charles Watson, chairman of the entertainment committee, on the dinner that was given the previous month for the mem-

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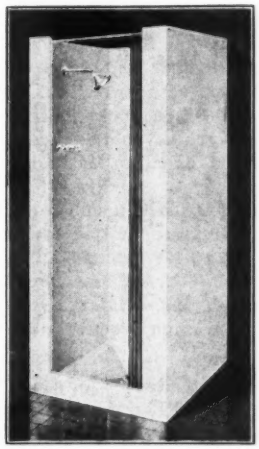

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April 15, 1919

You don't have to carry WEISTEEL Integral Shower Cabinets in stock to make money with them. Your only cash investment necessary will be the two-cent stamp that brings your inquiry to us. We'll show you the rest.

Every new home and many old ones, as well as hotels, apartments, and other buildings, offer excellent opportunities for the sale of WEISTEEL Cabinets---not as a substitute for something else you might sell, but as *additional* business that means additional profit.

Modern folks like to bathe the modern way---and that means showers. Every year our schools, colleges, Y. M. C. A.'s and similar institutions are turning out more and more confirmed shower enthusiasts, who want showers in their homes.

Why not let us tell you the whole interesting story? . . . HENRY WEIS MFG. CO., Inc., Elkhart, Indiana, Licensed Manufacturers.

WEISTEEL

bers and their husbands. The dinner proved such a success and was so much enjoyed by everyone that the members voted to have a turkey dinner a little later on, the date to be set at the next meeting in December. Miss Jennie Finn was the happy recipient of the beautiful pillow cases that were donated by Mrs. Jacobs. Following the business meeting the usual cards were enjoyed. Mesdames Charles Alcock, J. J. Delehant, F. J. Dillenburg, L. W. Hudon and C. F. Taffe were hostesses to the forty members at this meeting.

Kansas City, Mo., Auxiliary Aids School Children

The November meeting of the Kansas City (Mo.) Women's Auxiliary was held at the home of Mrs. Frank Smith. The hostess was assisted by Mesdames Spaeth, Pardee, Cunningham, Page and Ernst. A most delicious luncheon was served at one o'clock. Following luncheon, President Henderson took charge of the meeting. Miss Meade, of the school board, gave a talk expressing appreciation for the donation of underwear and stockings recently made by the auxiliary for the needy school children. In addition, each member gave a sweater.

The ways and means committee of the auxiliary gave a dinner dance during November. Dinner was served at 6:30, and the remainder of the evening was spent in dancing and card playing. A large crowd attended, and the social evening was enjoyed by all.

Pasadena Auxiliary Has Busy Season

The Women's Auxiliary to the Merchant Plumbers' Association of Pasadena, Calif., holds regular monthly luncheons at members' homes. Business meetings follow the luncheons. Three new members have recently been added to the auxiliary. A holiday dinner was given at the hall on December 3, with a card party following the dinner. Plans are being made for a Christmas tree party for the children. This party will be given at seven in the evening, December 20, at the hall at 484 South Hudson. The auxiliary recently entertained the federation, at which occasion as many as four hundred were present, and all expressed their appreciation for the hospitality of the Pasadena auxiliary. Mrs. W. H. Swihart, president of the auxiliary, and Mrs. A. C. Hanson, secretary, recently motored to Alhambra and assisted in the organization of a new auxiliary to be known as the San Gabriel Valley auxiliary. Mrs. W. R. Bills of Alhambra was elected president. Officers will be elected by the Pasadena auxiliary in January.

Cincinnati Auxiliary in New Headquarters

A luncheon and card party was recently held at the Domestic Art Guild by the Cincinnati, Ohio, Women's Auxiliary. The Domestic Art Guild is an outstanding organization in Cincinnati for the purpose of broadening the knowledge of household arts, and 120 ladies attended this gathering. On November 5 the auxiliary held its regular meeting at the plumbers' new headquarters. After the ladies had "inspected" their new surroundings, they concluded the new location was excellent and in the future a larger attendance is expected. It is the custom to send jellies and canned goods to some charitable institution once a year. This is done in memory of the auxiliary's deceased past president, Mrs. James J. Gibson, who faithfully served the organization for many years and who was always ready to help in time of need. This year Mrs. Webb's Free Day Nursery has been chosen to receive the offerings. The Christmas party is to be held at the Business Men's Club, with luncheon

at 12:30 followed by a brief meeting, cards and then the distribution of presents.

North Shore Auxiliary Plans Christmas Party

The Women's Auxiliary to the North Shore Sanitary Contractors' Association held its regular monthly meeting on Friday, November 15, at the home of Mrs. S. J. Steffens, Winnetka, Ill. At one o'clock a most delicious luncheon was served. Luncheon was followed by a business meeting, at which matters pertaining to the good of the auxiliary were discussed. After the business meeting, cards were played and the following ladies won honors: Mesdames F. Flader, G. Wood, A. S. McKenna and V. Killian. On December 20 the auxiliary will hold a Christmas party, and a large attendance is expected on this occasion.

Syracuse Auxiliary to Add to its Treasury

The Women's Auxiliary of Syracuse, N. Y., meets twice each month, on the first and third Wednesdays. The first meeting is a business meeting and the second a social meeting, at which cards are played and refreshments served. The attendance is small, but in spite of this, members feel that they are making satisfactory progress. Each member has pledged herself to make $5 in some way, in order to replenish the treasury. One member gave a party at which a substantial sum was realized.

District of Columbia Auxiliary Gives Party

The Women's Auxiliary to the Master Plumbers' Association of the District of Columbia gave a very successful party last month. F. W. Koehler, president of the master plumbers' association, thanked the members of the auxiliary in behalf of his organization for the enjoyable evening. Mrs. W. E. Miller, chairman of the committee on arrangements, expressed her appreciation for the assistance of all the members of the committee.

South Shore League Auxiliary Meets in Milwaukee

On the afternoon of November 16 the Ladies' Auxiliary to the South Shore League held its monthly meeting at Gimbel's, in Milwaukee, Wis. The ladies were later invited to join the men at dinner at the Blatz hotel. Those present were Mesdames Feiner, Fuge, Johnson, Kramer, Robb, Murphy, Brunk, Neary, Smith and Pugh. Mrs. Louis Norup, Mrs. Beetcher and Mrs. Murphy gave card parties for the interest of the auxiliary early this season.

Trenton Auxiliary Entertains Master Plumbers

The members of the Women's Auxiliary of the Master Plumbers' Association of Trenton, N. J., entertained their husbands and several out of town guests at a supper dance on November 15 in the association rooms. The affair was given by the auxiliary members as an indica-

Members of the Women's Auxiliary to the Master Plumbers' Association of the Oranges, N. J., at their recent outing

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You can buy a *good* Oatey 4 in 1 Roof Flashing for less money than it costs to make a poor one!

It's no longer economical to make or buy make-shift roof flashings.

It costs too much in customer complaints and service costs.

Buy Oatey 4 in 1 Roof Flashings from your jobber. Your first cost on them will be your last.

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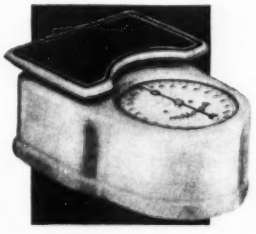
For *Extra* Profits



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BY including a Health-O-Meter in your bathroom estimates you can make extra profits on the bathrooms you equip. Dealers are finding customers accept the suggestion of a scale without question. Powerful advertising, a recognition of the importance of daily weighing for health and appearance are making a Health-O-Meter as accepted a part of the bathroom as the bathtub.

Show One In Your Model Bathroom

If you have set up a model bathroom, be sure to put a Health-O-Meter in it. Customers seeing your display will feel they should have a Health-O-Meter for their bathrooms. The new De Luxe model shown here is breaking all former sales records. It is a beauty, and accurate, serviceable as well. It can mean more profit for you. Fall in with other dealers—display this new scale, include it in your estimates, *get those extra profits!*

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Continental Scale Works, Dept. 68-L, 5703 S. Claremont Ave., Chicago, Ill.
Gentlemen: Please send me price list of scales and Special Dealer Plan.
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If you are not familiar with the Hessler Roof Flashing, you owe it to yourself and your customers to investigate at once.

Ask your jobber for the particulars—buy one—install it and you'll use nothing but Hesslers from now on.

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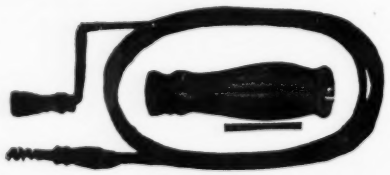
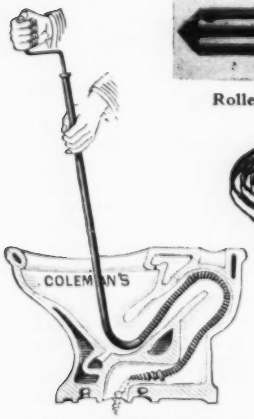
COLEMANS
SANITARY SPECIALTIES

If you haven't got full information on the Coleman line of sanitary specialties, you stand to lose a lot of money. Get acquainted, now, with this time and labor saving line of plumbers' tools.



Roller Wheel Torpedo Sewer Rod Point.



Ask your jobber about the Coleman line, today.

Coleman's tools for removing stoppages from closets are putting profits in many plumbers' pockets. They'll do it for you.

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tion of the appreciation which is felt toward the association membership in offering the use of the meeting rooms to the women for their meetings. Mrs. William T. J. Orriss, president of the New Jersey State Auxiliary; Mrs. Charles Zimmerman, state secretary, together with Mr. and Mrs. William J. Wilson of Lyndhurst, N. J., were present. Mrs. Orriss, in a cake walk in which every one participated, was awarded a home made cake as a prize. The applications for membership of Mrs. William Lee and Mrs. Russell Aring were accepted. Mrs. Fred Nitz is president of the association.

Meeting of Lawrence Auxiliary

The Women's Auxiliary of Lawrence, Kans., was called to order at 7:45 p. m., on Tuesday, December 3. After hearing the reports of the secretary and treasurer, and considering various matters of business, a general discussion took place. Mrs. August Dahlene was leader, the subject being, "Hospital Conditions in Regard to Plumbing and Sanitation." A social hour followed. Mrs. A. E. Woestemyer was hostess.

North and Northwest Auxiliary Holds Dinner Dance

The Women's Auxiliary to the North and Northwest Master Plumbers' Association of Chicago gave a dinner dance Wednesday evening, December 4, at the Germania club. The money secured from the occasion will be used toward the group's contribution to the boys' scholarship fund. More than 150 members and guests were present, and it was very apparent that everyone enjoyed the festivities from the beginning to the end.

Those in charge of the arrangements were Mrs. Robert Liss, president of the North and Northwest Ladies' Auxiliary; Mrs. George H. Matthews, vice president; Mrs. Henrietta Jacoby, recording secretary; Mrs. R. J. Weber, corresponding secretary; Mrs. L. Markowski, treasurer; Mrs. Frank Pearson, Mrs. William A. Bond and Mrs. H. H. Diedesch, reception officers.

Newton Auxiliary Gives Surprise Party

The monthly meeting of the Women's Auxiliary of Newton, Mass., was held November 14 at the home of Mary E. Ryan, Brown street, Waltham, Mass. After a lengthy business meeting, which was attended by a large number, bridge was played, honors going to Mrs. Landers, Mrs. Davis and Mrs. Leahy. Refreshments were served later in the evening. On Saturday evening, November 30, a surprise party was given to Mr. and Mrs. Fred Warren at their home on Lowell street, Waltham, Mass., by the members of the auxiliary and the master plumbers of Newton and vicinity. Mr. and Mrs. Warren were presented with a dozen silver bread and butter spreaders, and also a lovely wedding cake. Bridge was played during the early part of the evening. Later a musical program was enjoyed, and supper was served.

Nassau County Auxiliary Gives Turkey Dinner

The Women's Auxiliary to the Nassau County (N. Y.) Association of Master Plumbers gave a turkey dinner on the evening of November 20. It was a great success. There was a much larger attendance than had been expected, but as there was plenty of turkey and other good things on hand, everyone enjoyed himself immensely. A real jazz orchestra furnished the music for dancing. Seven new members joined the auxiliary at this time, and all are looking forward to other meetings. Several expressed their delight in the spirit of friendship and good fellowship among the auxiliary members. All are looking forward to the next social affair.

Business Changes

West St. John, N. B.—W. E. Emerson & Sons, plumbing and heating contractors, have purchased a new site at King and Ludlow streets on which they will erect a building for the business, which was founded 70 years ago by the late John Emerson.

Corning, Calif.—J. M. Stadler and L. Holland, of the Corning Electric Shop, have sold the plumbing and heating department of the business to J. B. Crawford, of Richfield, Calif.

Atlanta, Ga.—The O'Pry Heating & Plumbing Co., Macon, Ga., has opened an office at 510 Walton building. E. R. Hilliard, vice president of the company, is in charge.

Corydon, Iowa—J. Heyl has moved his plumbing and heating establishment to the Charles Wilds building.

Marysville, Wash.—E. Smart, who has been engaged in the plumbing and heating business on the corner of Third and Columbia streets, has sold out his business to William Patterson.

Watsontown, Pa.—Sterling A. Deaner, plumbing and heating contractor of Milton, Pa., is opening a branch establishment in the postoffice building.

St. Peter, Minn.—O. L. Mork has leased the Ludcke building on Minnesota avenue for his plumbing establishment, which was formerly located on West Nassau street.

Atlanta, Ga.—Wm. A. Manning & Sons, Inc., heating and ventilating engineers and contractors, have removed from 353 West Peachtree street to 145 East Linden avenue, Northeast.

New Business Ventures

Long Island City, N. Y.—The firm of Brenner and Stern, Inc., has been organized, with a capital of $5,000, to establish and operate a plumbing contracting business. The company is represented by L. Tannenbaum, 38 Park Row, New York City.

New York, N. Y.—Charles P. Bort, and associates, have organized and incorporated the firm of Charles P. Bort, Inc., with a capital of $1,000. It is planned to establish and operate a plumbing and heating contracting business. N. Ballin, 291 Broadway, represents the concern.

San Francisco, Calif.—Henry Cornehl has engaged in the plumbing and heating business at 587 California street.

New York, N. Y.—The Security Heating Co. has been organized and incorporated, with a capital of $10,000, to engage in the heating contracting and engineering business. S. H. Reitberg, 123 William street, represents the firm.

New York, N. Y.—The Savon Plumbing and Heating Corp. has been organized and incorporated, with a capital of $20,000, to establish and operate a plumbing and heating contracting and engineering business. The new firm is represented by Diamond, Abrahams and Strauss, 270 Madison avenue.

Corona, L. I.—Adolph Di Blasi and associates, have organized and incorporated the firm of Adolph Di Blasi, Inc., with a capital of $20,000, to engage in the plumbing contracting, engineering business. The law firm of Giamo and Nicolosi represents the new concern.

Kenmore, N. Y.—The Leh Heating Co. has been organized and incorporated, with a capital of $20,000, to

KENT AUTOMATIC GARAGE, NEW YORK
Jardin, Hill & Murdock, Architects

World's Tallest Garage Selects

SARCO Radiator Traps

This 24-story garage has a capacity for 1,000 automobiles. Cars are taken on the elevators automatically at the street level and automatically removed by an electric parker. All parking is done by electricity—no human hand touches the cars.

There are 234 Sarco Radiator Traps in the heating system of this gigantic garage, while Sarco combination float and thermostatic Steam Traps were installed on all unit heaters and drips.

The larger and more important the building is, the greater is the responsibility of selecting its equipment. It is in buildings of this type that you will usually find Sarco Traps. For architects, engineers and contractors know that Sarco Traps have given dependable service for years and years and that they are backed by an old, responsible concern who "makes good" promptly, without question or quibble, if ever needed.

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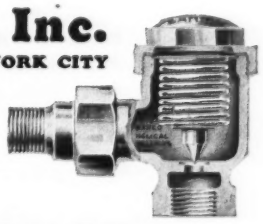

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Christmas Calls a Halt

No other day in all the calendar brings with it, even in a small measure, the great rest and peace of Christmas.

It is difficult to conceive what the world would do without this most beautiful of all days—and what each of us would do without the good wishes of our friends.

The Indiana Brass Co. pauses, also, to wish all of the contractors, all of the jobbers and all of its fellow manufacturers, the season's greetings.

And we find in the old year's record, basis for the prophecy that the New Year will be a prosperous one.

The Indiana Brass Company, Frankfort, Indiana

establish and operate a heating contracting and engineering business here. The new firm is represented by Werner, Harter and Moran, attorneys, Buffalo.

North Hempstead, L. I.—The firm of O'Connell and Francis, Inc., has been organized, with a capital of $10,000, to establish and operate a plumbing contracting and engineering business. Principals of the new concern are P. H. O'Connell and Y. L. Francis.

Somerville, N. J.—The County Seat Plumbing Supply Co. has been organized and incorporated, to establish and operate a plumbing contracting business. Representing the new firm is S. Davidson, attorney, Plainfield, N. J.

Cleveland, Ohio—The Leiken Brothers Plumbing and Heating Supply Co. has been organized and incorporated, with a capital of 24 shares with no par value, by David and Edward Leiken and Jacob Cohen, to establish and operate a plumbing and heating contracting business. The new firm is represented by Saule G. Danceau, 437 Leader building.

Glendale, Calif.—Charles F. Townsend has engaged in the plumbing and heating contracting business at 1159 Raymond street, under the name of The Emergency Plumber.

Atlanta, Ga.—Gardner & Sockwell has recently been organized to engage in the plumbing and heating contracting business with offices at 201 Bona Allen building.

Oakland, Calif.—The Heating Service Co., Ltd., has been incorporated with a capital stock of $10,000, by Leigh Bancroft, Leon M. Gove and O. G. Foelker, all of Oakland.

Camden, N. J.—The Globe Plumbing and Heating Supply Co. has been organized and incorporated with

Top row: E. R. Barkley, Mrs. and Mr. A. Thornton and Paul Knauff, all of Borden Co., Warren, Ohio. Middle row: Philadelphia delegation.. Bottom row: H. G. Lambert, W. R. Kerr, George Eggers and J. B. Trunell, all of Walworth Co., Boston, Mass. Photos taken at Buffalo convention, N. A. M. P.

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NOFOME

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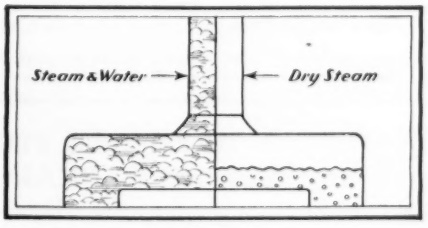
absolutely stops and prevents boiler foaming whether in an old or new installation. When the boiler foams the cause is a chemical reaction in the water. And this reaction cannot take place when No Fome is used. The diagram below shows how No Fome instantly stops foaming.



MAKE THIS TEST

To one quart of boiling tap water add 1 teaspoon soap flakes. When it is foaming violently drop in a small quantity of No Fome. You will see that No Fome ends priming instantly. Then try this with any other product on the market and see the difference.

We will be glad to send you a sufficient supply of No Fome to treat a small installation free of charge together with a descriptive folder.

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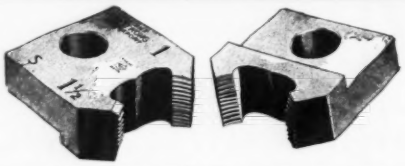

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Perfect threads first to last—with far less elbow grease. *Kalorized* ARMSTRONG *Adjustable* DIES are tough, long-lived dies that rarely need sharpening.

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Writes Clyde S. Wolf of McKeesport, Pa., of his "WILLIAMS Portable" pipe and nipple threading machine—

"After trying several threading machines I found the 'WILLIAMS Portable' (Willie Williams) four times faster—it is the best investment I ever made, and would rather do without my auto than my WILLIAMS."

Will be glad to send you our booklet "*A Story of Extra Profits,*" giving some actual reports of savings made. Write us.

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THE Clayton & Lambert line of blow torches and firepots has been made for forty years, and nearly every year has seen some real improvement in it. This policy of constantly bettering an already fine product accounts for Clayton & Lambert's overwhelming popularity.

There's a size and style for any need. Priced right. Does its job in first-class style. And keeps on doing it, year after year, in spite of rough treatment and even careless handling. Your regular supply house carries Clayton & Lambert products, or can get them for you.

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a capital of 2,000 shares of no par common stock, to establish and operate a plumbing and heating contracting business. Joseph Varbalow, local attorney, represents the new firm.

Montebello, Calif.—The B. B. Plumbing Co. has engaged in business at 108 South 6th street, under the management of B. R. Burke.

Portland, Ore.—J. B. Stokes has engaged in the plumbing and heating contracting business under the name of Northwest Heating & Engineering Co.

Chehalis, Wash.—John T. Wilson of Centralia, Wash., has opened a branch plumbing and heating establishment at 1079 Chehalis avenue, under the name of Chehalis Plumbing Co.

Klamath, Ore.—The Gray & Paxson Plumbing Co. has been organized by John M. Gray and H. Paxson to engage in the plumbing and heating contracting business.

San Francisco, Calif.—Ernest H. Hogan has engaged in the plumbing and heating business at 1281 Mission street.

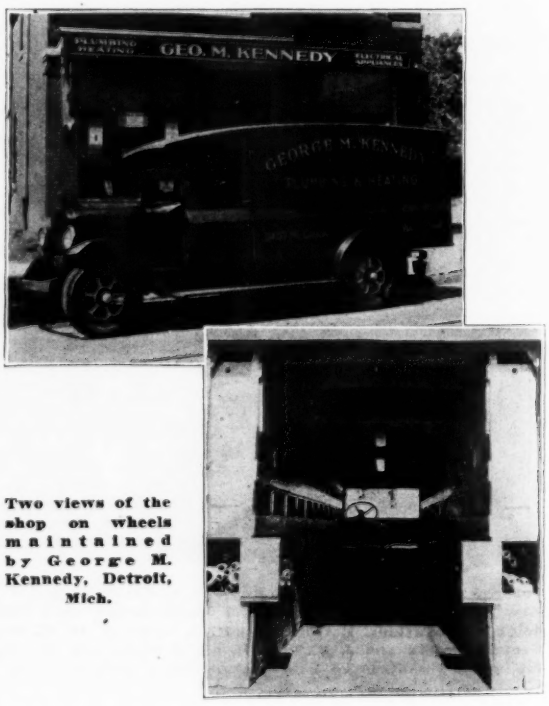
Detroit, Mich.—The Eveready Plumbing & Heating Co. has been incorporated at 3731 Monterey avenue, with a capital stock of $1,000.

Atlanta, Ga.—W. J. Hogan, formerly president of the Sanitary Plumbing Co., Atlanta, has organized the Hogan Engineering Co., with offices at 401-3 Southeastern Trust Co. building. Mr. Hogan is president, and chairman of the board of directors. W. S. Trautweine has been appointed to fill the vacancy at the Sanitary Plumbing Co.

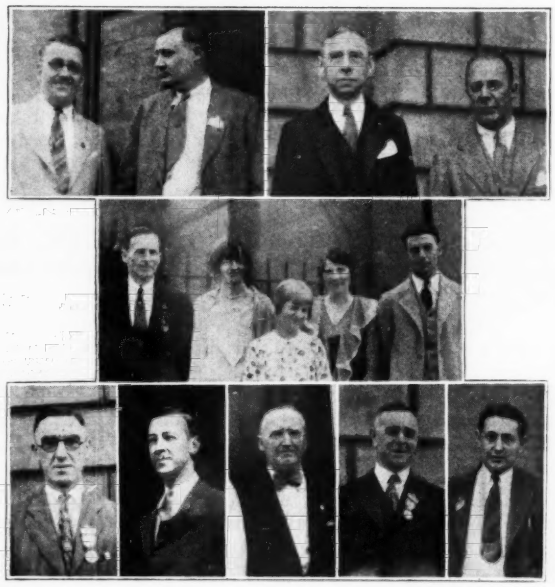
Orrville, Ohio—Ralph Eshelman, who was formerly with H. P. Ulman in the plumbing and heating business in Akron, Ohio, has established himself in the plumbing business on West Market street.

Brooklyn, N. Y.—The firm of Louis Black, Inc., has been organized by Louis Black and associates, with a capital of $25,000, to engage in the plumbing contracting business. M. M. Black, 1440 Broadway, New York City, represents the new company.

New York, N. Y.—The Hanover Plumbing Corp. has been organized and incorporated, with a capital of $2,000,



Two views of the shop on wheels maintained by George M. Kennedy, Detroit, Mich.



Top row: L. H. Slawson of Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.; B. C. Hecox of James A. Sexauer Mfg. Co., New York City; R. L. Griffin and E. W. Case, both of W. A. Case & Son Mfg. Co., Buffalo, N. Y. Middle row: Halsey W. Taylor of Halsey W. Taylor Co.; Miss Velva Taylor, Miss Ann Taylor, Mrs. Thomas R. Rose, Thomas R. Rose of Halsey W. Taylor Co., all of Warren, Ohio. Bottom row: M. J. Nollen of Springfield, Ill.; E. L. MacWhorter of A. M. Byers Co., Rochester, N. Y.; David Smythe of Central Tube Co., Pittsburgh, Pa.; W. L. Gangloff of Pittsburgh; Max Mark of Finn Heater Co., Detroit, Mich. Photos taken at the Buffalo convention, N. A. M. P.

to establish and operate a plumbing contracting business. S. Gavrin, 290 Broadway, represents the new concern.

Asheville, N. C.—The Union Plumbing & Heating Co. has been incorporated, with a capital stock of $50,000, by J. C. Cauble, 23 Broadway, and others.

Baltimore, Md.—The Hampden Heating & Plumbing Co., Inc., 801 W. 38th street, has been chartered by Howard F. Chalk and J. M. Chalk and others.

Houston, Tex.—The General Heating & Electric Co. has been incorporated, with a capital stock of $20,500, by Earl W. Thomas, 2508 Willshire street, and others.

A Plumbing Problem in Remodeling

(Continued from Page 73)

Stack	Units	Hoover	New York	Allentown
A	54	3 inches	4 inches	4 inches
B	39	2½ inches	3 inches	4 inches
C	143	4 inches	5 inches	5 inches
D	18	2 inches	3 inches	4 inches

Total number of fixture units was 254, and referring to the table of sizes for house sewers, it is found that the size of house drain required for that number of units would be 8 inches, 6 inches and 5 inches, respectively, for a pitch of ⅛-inch, ¼-inch and ½-inch per foot.

It will be observed that in the above tabulation, the sizes of stacks required under the Hoover code would be less in each case than for either of the two cities represented. This result was to have been expected, for in general, the Hoover code pipe sizes are lower than found in common practice.

The Tallest Building in World Installs

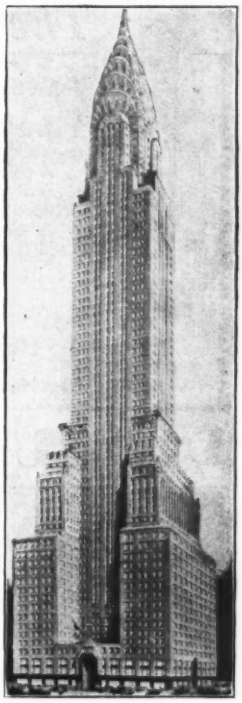
Patterson

Hot Water Heaters and PreHeaters

The new Chrysler Building, New York, has 71 stories and tower, over 800 ft. high and has about 900,000 ft. of floor space. It is estimated that about 11,000 people will be housed in the building's offices, who will be supplied with hot water by Patterson Hot Water Heaters.

This gigantic structure is indeed a monument to the skill of Wm. Van-Alen, Architect; Fred. T. Ley & Co., Builders; Louis T. M. Ralston, Consulting Engineer; Baker, Smith & Co., Heating Contractors, and John Weil Plumbing Co., Plumbing Contractor.

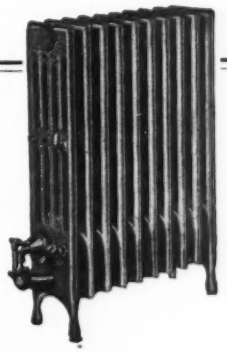
Write for our interesting catalog.



The Patterson-Kelley Co.

106 East 40th Street - New York, N. Y.

They'll Buy Automatics



Right now is the time when your customers are looking for just the convenience and dependability of Automatic Gas-Steam Radiators.

If you haven't told your customers about Automatic Gas-Steam Radiators, do it now. They'll buy because they know the need for Automatics.

Ask your jobber for particulars or write us direct.

Automatic Gas-Steam Radiator Co.

PITTSBURGH PENNSYLVANIA

TESTING LABORATORY A.G.A. APPROVED

The PEERLESS

Automatic Electric Sump Pump and Cellar Drainer

A positive, dependable drainer that is easily installed and may be depended upon to give constant service.

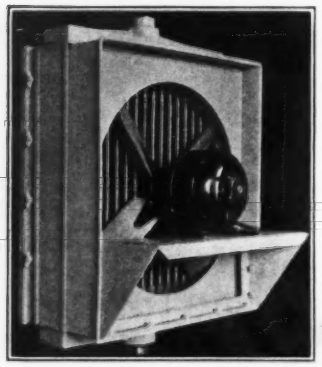
It is sold under a strict money back guarantee.

Write for complete details

Manufactured by

PEERLESS MFG. CO.
Incorporated
East Norwalk Connecticut

DIXIE UNIT HEATERS



Specify and install the unit heater with the patented compression coupling which a five ton pull could not break.

Write for the details of the Dixie Unit Heater

THE DIXIE BLOWER COMPANY
1351 W. 37th Pl., Chicago

PAINE

Flattened End Lag Screws

Made in four sizes and furnished with bolts

¼ x 3 ⅜ x 3½ ⅜ x 4 ½ x 5

Will fit any standard lag screw shields of corresponding sizes

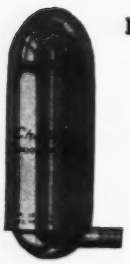
Send for samples and prices

THE PAINE COMPANY
2949-53 Carroll Ave., Chicago, Ill. 79 Barclay St., New York, N. Y.

Chadeayne

VAPOR - VACUUM RADIATOR AIR VALVE

TWO in ONE



This valve is designed to consolidate the advantages and eliminate the disadvantages of both vapor and vacuum types of air valves. This is accomplished by a radically new design and the addition of means that have never been used before

Try one on the best radiator and see the improvement.

Ask Your Jobber

Manufactured by

Chadeayne
(*Sha-deen*)
187 6th Ave., Brooklyn, N. Y.

New Trade Literature

Tool Grinder Booklet

The Oesterlein Machine Co. of Cincinnati, Ohio, has just issued a booklet illustrating and describing its line of tool grinders. The booklet consists of 12 pages, 8½ x 11 inches.

Circular of Frank Bros. Mfg. Co.

Frank Brothers Mfg. Co., Inc., New York City, has prepared a circular describing and illustrating its combination siphon air valve and steam gauge.

Folder of Kant Slip Plier and Tool Co.

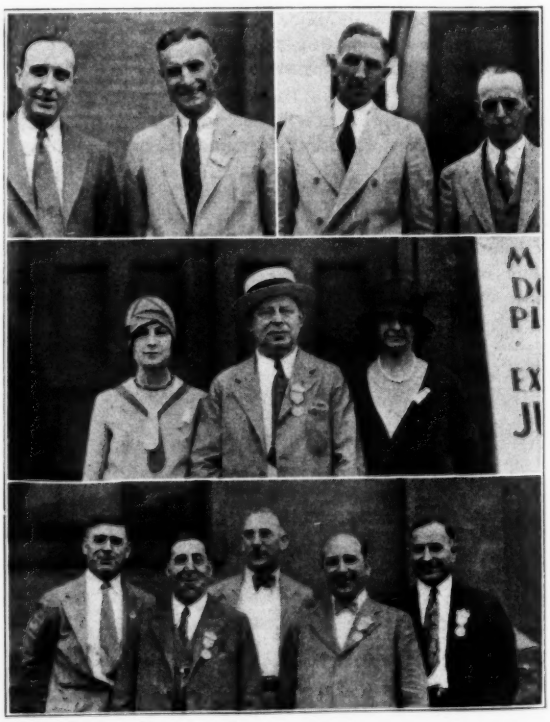
Kant Slip Plier and Tool Co., of Chicago, has issued a circular describing its plier, with sliding fulcrum. A number of illustrations show the use of the plier in tightening a pipe flush against the wall, with round-head bolts that are flush with the surface.

Circular of Buffalo Forge Co.

Buffalo Forge Co., of Buffalo, N. Y., is distributing a circular describing its new unit heater which is designed to wash and humidify the air, in addition to heating it. No operating mechanism is required to drive the washing drum, the folder states. A large illustration in colors shows the unit heater described.

Booklet of General Iron Works Co.

General Iron Works Co., of Cincinnati, Ohio, has just issued a booklet which describes its ventilating furnace, which furnishes warm fresh air in winter, and cool fresh air in summer. This gas unit heater is described, both as to construction and operation, and the humidifier, air



Top row: E. W. Bethel and E. Sanger, both of Hotstream Heater Co., Cleveland, Ohio; H. C. Patterson of Delco-Light Co., Dayton, Ohio; F. P. Logan of United States Sanitary Mfg. Co., Pittsburgh, Pa. Middle row: Miss Katherine Haas, William Haas and Mrs. William Haas, all of Dayton, Ohio. Bottom row: William E. Horn, Peter Charleston, A. F. Sheppard, A. W. Phillips, Edward Timm, all of Detroit, Mich. Photos taken at the Buffalo convention, N. A. M. P.

Fuel Is Only ½ ~ The Story

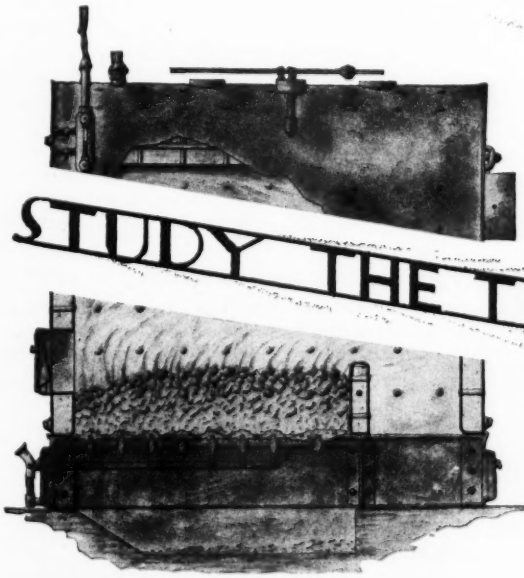
50% DIRECT HEATING SURFACE

RIGHT ANGLE TUBE LAYOUT ~ ALTHOUGH INCLINED

The KNOWLTON BOILER

The best of fuel, in an improperly built or designed boiler, cannot develop heating efficiency sufficient to meet expectations. Important factors in boiler design and construction are frequently overlooked in an effort to effect economy by purchasing at a low price. In Knowlton Boilers the economy is reached by superior performance during the entire life of the boiler. Fuel is given a chance to accomplish the full purpose for which it is intended. Two of the greatest contributing elements to the marked efficiency and operating economy of Knowlton Boilers are the correct inclination of the tubes with right angle connection to heads, and the 50% Direct Heating surface for which these tubes are accountable.

Write us for bulletins "M," "N," and "O." Destroy all other literature.



STUDY THE TUBES

KNOWLTON WATERTUBE STEEL BOILERS

ORR & SEMBOWER, Inc.

READING, PENNSYLVANIA

208 N. Clinton St., Chicago 50 Church St., New York

COMPLETE · HEATING · SATISFACTION

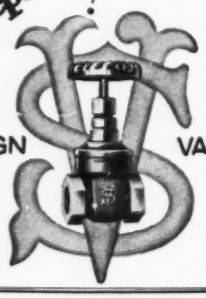
Try the Martin Portable Vise Stand and Pipe Bender in your own shop. If you are not satisfied, we will refund your money.

MARTIN Vise Stand Pipe Bender PORTABLE

Ask your jobber to show you the Martin—then put it to the test of service.

H. P. MARTIN & SONS
626 EAST 2nd STREET OWENSBORO, KENTUCKY

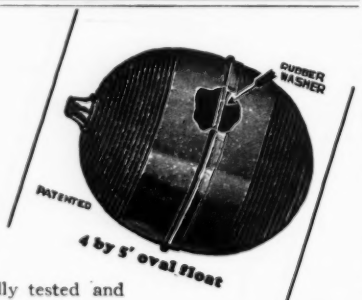
Absolute Dependability since 1886



SCOTT
A COMPLETE LINE OF BRONZE and IRON-BODY VALVES
-built for long life
SIGN VALUE
SCOTT VALVE MFG. CO. DETROIT MICH.
"MAXIMUM SERVICE PER DOLLAR"

No-Sol Floats

incorporate all essential features necessary to the satisfactory performance of a tank float.



Each float is individually tested and guaranteed.

THE AYLING & REICHERT CO.
4037 N. ERIE STREET TOLEDO, OHIO

DOMESTIC ENGINEERING's Retail Advertising Service makes advertising easy for you—all you do is clip the copy from your copy of the paper and hand it, with the cut we send you, to your newspaper. Only $4.20 for 12 illustration cuts. Clip this, attach your check for $4.20 and mail today.

DOMESTIC ENGINEERING
1900 PRAIRIE AVENUE, CHICAGO, ILLINOIS

Bernard Dwyer and Joseph Hern, both of Boston; P. R. Williams of H. B. Smith Co.; Coll Flint, Boston manager of H. B. Smith Co.; A. S. Brown, of Brown's Letters, Inc. Photo taken at a recent meet of the Massachusetts Heating Trades Golf Association

delivery register and burner are illustrated. There are numerous descriptions of industrial installations, as well as illustrations showing homes and factories in which this heating and cooling system has been installed.

Bulletin of Aerofin Corp.

Aerofin Corp., of Newark, N. J., has just issued Bulletin No. 29, "Standardized Light-Weight Fan System Heat-Surface." This bulletin consists of 135 pages, 8½ by 11 inches, printed on highly glazed paper. The bulletin contains technical descriptions of the design and construction of heat-surface. Orifice rings, tapping hubs, tube alignment plates, core locking keys, header supports, supply and drip tappings, are some of the parts described. Many pages are devoted to the tables of data of final temperatures and condensations, physical data, etc. Piping diagrams in four colors, and temperature effects charts occupy the last part of the bulletin. A thumb index aids in making the various data readily accessible.

Booklet of Malleable Iron Fittings Co.

Malleable Iron Fittings Co., Branford, Conn., has prepared for distribution a booklet under the caption, "The Fitting that Built a Town." The booklet consists of twelve pages and gives an historic account of the company from the time of its organization at the close of the Civil War. It also covers the design, metal composition and other mechanical qualities of the company's fittings.

"Forty Years of Business Building"

"Forty Years of Business Building" is the title of a booklet just issued by the Ohio Brass Co., of Mansfield, Ohio. This booklet is bound in cloth cover of white, black and gold and consists of thirty pages. By means of a series of twenty-four photographs, the reader is taken through the plant. Chemical testing of brass and copper, physical testing laboratory, the monorail conveyor system, sand conditioning equipment, molding equipment, machining operations, etc., show the various operations in making the company's valves.

Catalog of Blake Specialty Co.

Blake Specialty Co., of Rock Island, Ill., has just issued its Catalog for 1929-1930, consisting of 152 pages, 8½ by 10½ inches. This catalog is really a combination of three separate catalogs bound into one volume, each section having a separate cover. Catalog No. 100 includes grease traps, lavatory backings, wall hung closet fittings and chair hangers, closet connections and swimming pool equipment. In Catalog 110 are listed shower, urinal, hospital, roof, industrial, garage and floor drains. Miscellaneous plumbers' tools and sanitary plumbing fittings are found in Catalog No. 120. The catalog contains numerous illustrations and diagrams.

Pipelines

Connected by L Y T

It is said that every girl baby has an expectation of life four years longer than that of a boy baby. This is only fair, because she has so much more to say.

Accepting the above as our text for this issue of PIPE LINES, we cull the following remarks about the fair sex. We trust that they will be accepted in the spirit in which they are offered. But, just in case, we announce, also, that we have planned an extended trip. We will not leave a forwarding address, so that bombs sent through the mail will be promptly returned to the sender.

TRADE WINDS gives us this one: The schoolmaster reported that the pupil was a worker, but a tireless talker. The boy's father wrote back: "You should meet his mother."

MUELLER RECORD records one of those conversations that—well, you know what we mean. It goes something like this:

"What do you think of Mr. Brown's wife?"

"She is as pretty as a fairy tale."

"Ah, you mean 'once upon a time.'"

Perhaps it was mean of the gentleman below who started the conversation about married life. It's one of those jokes, by the way, that you shouldn't tell your wife. She might not understand. It goes:

Two men, who had been married at about the same time, met after some months. One asked the other how he liked married life.

"Fine," was the reply. "My wife's an angel."

"You always did have all the luck," said the first. "I still have mine." NATIONAL DRILLERS' JOURNAL.

PAYING FOR A LAUGH

Husband: Every time I look at that new dress of yours, it makes me laugh.

Wife: That's fine! I'll put it on—when the bill comes.

P. G. N., Chicago.

HELPING HUBBY

The young doctor sat wearily down in his easy chair and asked his wife affectionately: "Has my darling been lonely?"

"Oh, no!" she said. "At least, not very. I've found something to do with my time."

"What is it?" he asked.

"I'm organizing a class. A lot of women are in it, and we're teaching each other to cook."

"What do you do with the things you cook?"

"We send them to the neighbors."

"Dear little woman," he said, kissing her, "always thinking of your husband's practice." WEATHER VEIN.

AND "SY" SEZ

A magazine asks the question: What kind of a husband does the wife miss most? The answer to that seems to be, the one who can duck quickest.

The modern girl may not know how to cook, but just the same she knows how to get a good dinner.

"What became of that stenographer you used to have who was so terrible at spelling?" asked Black.

"Oh," sighed Brown, "I married her and she still has her bad spells." "SY" MARTIN, Owensboro, Ky.

We do not wish to appear unfair to the fair sex. Therefore, we include this one in which the lady seems to have the best of it:

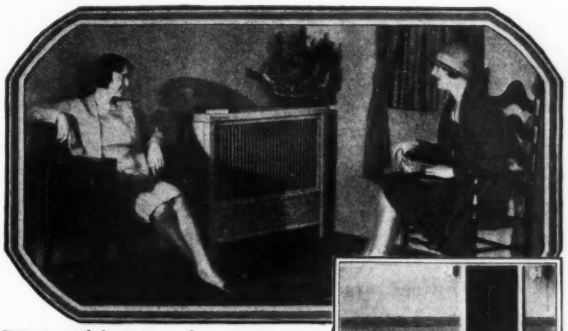
He: "Didn't some brainless fool propose to you before we were married?"

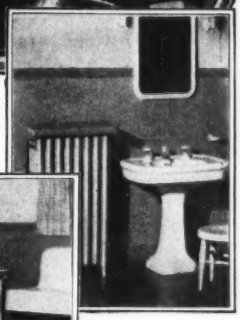
She: "Yes."

He: "I wish to goodness you'd married him."

She: "I did."

A major mystery to us is in the fact that radio is so popular with women. L Y T.





We'll Help You Sell Them!

Business conditions are changing... *have changed.* Drug stores are fast becoming restaurants. Cigar stores are being converted into soda fountains. Competition is so keen... today... that "side-lines" must be added if one wishes to remain in business. Armstrong Radiator Shields and Enclosures offer you an extra source of profit.

THE THOMAS & ARMSTRONG CO.
Radiator Shield Division, Dept. D-6
London, Ohio

Our tried-and-tested plan offers you a practical method of obtaining this profit. Write us today.

Armstrong Radiator Shields & Enclosures

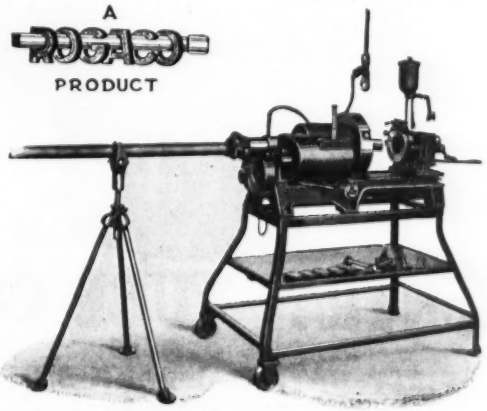
Look Ahead for Your Next Year's Profits

Now is the time to consider the ROGACO PORTABLE ELECTRIC PIPE MACHINE to increase your profits. This machine will cut, thread, ream and make on pipe or fittings from a lamp socket. Those plumbers and fitters who own them show a greater profit at the end of the year than those using old fashioned hand tools.

Start the year right with a ROGACO. Easy payment plan.

ROBBINS, GAMWELL & CO.
PITTSFIELD :: MASSACHUSETTS

A ROGACO PRODUCT

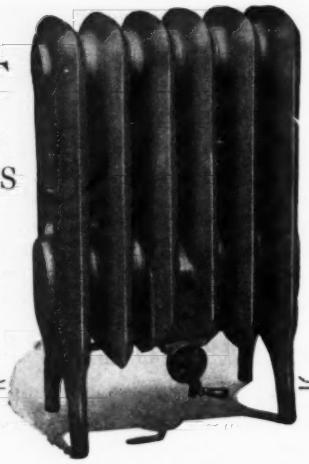


COMET
GAS
RADIATORS

◆

The Perfect Heat

◆



Complete heating efficiency can be obtained at the lowest possible cost with the use of the Comet Radiator.

There is nothing about them to get out of order and they need practically no attention.

Let us show you how to make good profits with the Comet.

COMET RADIATOR CO.
INTEGRITY BLDG. ∴ PHILADELPHIA, PA.

FOR TIGHT FITTING JOINTS

CENTRAL

IS *the* PIPE

CENTRAL TUBE CO.
GENERAL OFFICES
FIRST NATIONAL BANK BLDG.
PITTSBURGH

Bath a Day Movement

We have so many requests from school teachers and their pupils for copies of "The Story of the Bath," inquiries that come from all parts of the country, that it is difficult to think of a more favorable or wide-spread opportunity for publicity for the master plumber. Here are people in many cities and towns, anxious to be instructed in the ways of sanitation. Each of these inquiries is invariably referred to the local master plumbers' association where there is one, or to the state association where there is no local in the town from which the inquiry comes.

171

Here is a typical inquiry, received from a schoolboy in Greenfield, Mass.: "Kindly send 'The Story of the Bath'. I send this in behalf of The Blue Ribbon Health Club of which I am president. I thought that this book would be interesting to read at the meetings." It is signed by Roy Taylor, Bernardston Road, Greenfield, Mass.

Here is a little group of pupils ready for educational material. Properly handled by a local representative of the state association, that little group could be made the nucleus of a Bath a Day Campaign which would ultimately, and in a very short time, make Greenfield, Mass., aware that there was such a thing as a plumbing contractor, and that he was a very important personage in the community.

Inquiries such as this ought to receive attention from association secretaries, promptly, and with some conception of the tremendous possibility they present for favorable publicity.

Epigrams—For Your Use

It takes an ignorant man a good while to discover what ails him.

* * *

No man ever thinks that he is as homely as he really is.

* * *

A man is the most important piece of furniture in a woman's aircastle.

* * *

When fame does come to the average man it rests on his monument.

* * *

Love laughs at locksmiths—and so does divorce.

* * *

Courtship is merely the preliminary skirmish before the real battle begins.

* * *

Some people get cold feet when they get into hot water.

* * *

No woman can make a worse wife than a man can a husband.

* * *

A girl seldom kicks when an old man lays a fortune at her feet.

* * *

Time isn't money; nearly every one has more time than money.

* * *

A woman's mouth either shows her own character or exposes other women's.

* * *

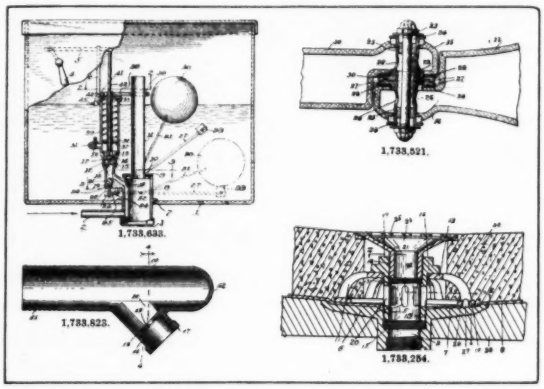
People who live in glass houses should be grateful to the inventor of curtains.

PATENTS

Plumbing Department

1,733,823. Closet Bend. Osgood M. Redlon, Bath, Me.

1,733,633. Flush Valve. Albert Sterbenz and Jacob Amsler, Los Angeles, Calif.

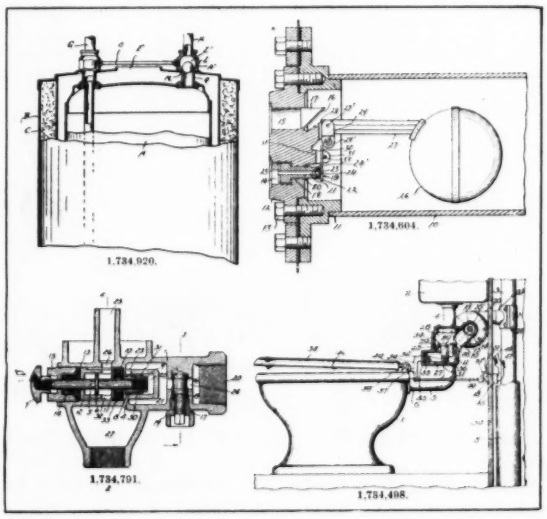


1,733,521. Shower-Bath Fixture. Maximilian W. Wuesthoff, San Francisco, Calif., assignor to Edward T. Foulkes, San Francisco, Calif.

1,733,254. Surface Drain, Wells S. Fleming, Portland, Ore.

1,734,498. Ventilating and Flushing Apparatus for Water-Closets. Charles J. Majauskas, Chicago, Ill.

1,734,604. Float Valve. Lawrence C. Smith, Detroit, Mich.

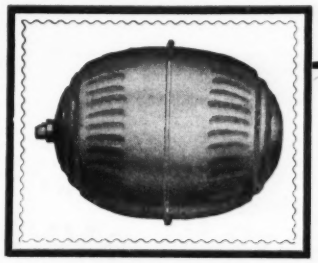


1,734,791. Push Valve. Frank A. Bicknell, Florence, Mass., assignor to Puro Sanitary Drinking Fountain Company, a Co-partnership composed of Christian J. Hills and Ruben B. Hills, Haydenville, Mass.

1,734,920. Hot-Water System. Frank W. Shuell, Detroit, Mich., assignor to EverHot Heater Company, Detroit, Mich., a Corporation of Michigan.

1,734,762. Ball Cock. Herbert D. Clemmons, Sturgis, Mich., assignor to Scovill Manufacturing Company, Waterbury, Conn., a Corporation of Connecticut.

1,734,828. Water Heater. David F. Priser, North Manchester, Ind.



Made of pure copper and employing no solder anywhere

TOLEDO

A float is a small matter but its one of those things that can require a lot of time in installation unless it is made right. Reichert Toledo Solderless Floats ARE MADE RIGHT.

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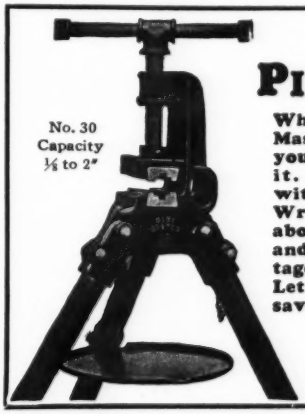

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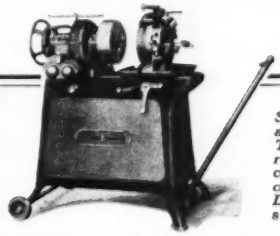

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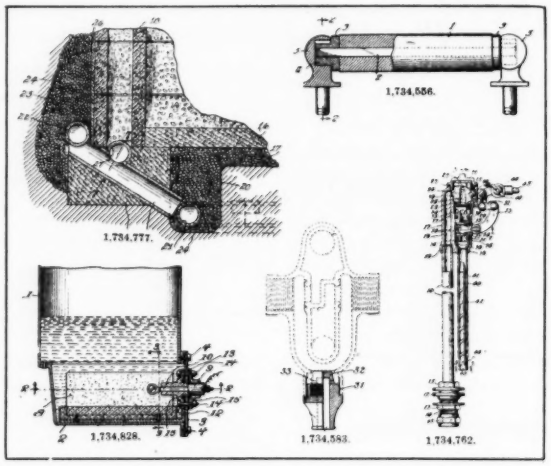
1,734,777. System of Draining. Frank A. Pike, Rochester, N. Y.

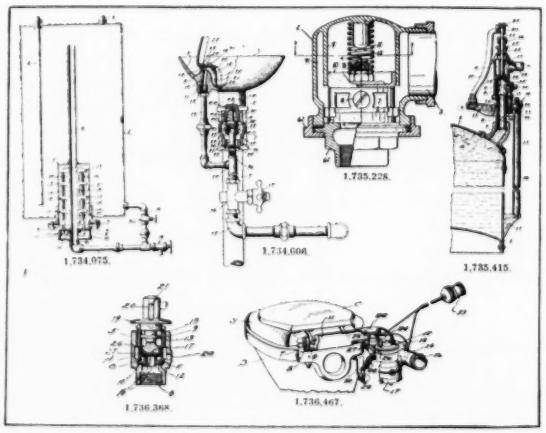


1,734,556. Hinge for Toilet Seats. Joseph W. Bishop, Muskegon Heights, Mich., assignor to The Brunswick-Balke-Collender Company, Chicago, Ill.

1,734,583. Sytem of Predetermined Constant Water Supply and Faucet Nozzle Therefor. Samuel Kersten, Chicago, Ill.

1,734,075. Water Heater. Herbert W. Christian, Windsor, Ontario, Canada.

1,734,606. Drinking Fountain. Willard Felton Sterne, Buffalo, N. Y., assignor to American Radiator Company, New York, N. Y., a Corporation of New Jersey.



1,735,228. Flush Valve. Fred P. Angell, Battle Creek, Mich.

1,735,415. Safety Device for Hot-Water Boilers. Andrew G. Spinney and Charles A. Twigg, Portland, Me.

1,736,368. Flush-Tank Valve. Arthur P. Ricard, Kansas City, Mo.

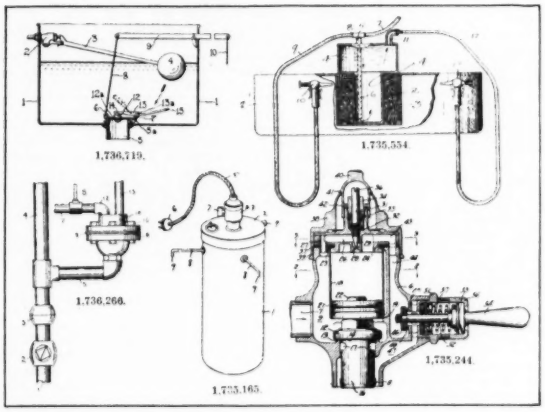
1,736,467. Sanitary Device for Water-Closet Bowls. Bertram Sarrett, Nashville, Tenn.

1,736,654. Hard Solder Particularly for Grey Pig Iron, Cast Steel, Iron, and the Like. Emil Lay and Carl Mattick, Frankfort-on-the-Main, Germany, assignors to American Lurgi Corporation, New York, N. Y., a Corporation of New York. Hard solder particularly for grey pig iron, cast steel, iron and the like, comprising 42 to 60 per cent copper, 1 to 10 per cent nickel and an appreciable amount up to 3 per cent silicon, the remainder consisting of zinc.

1,735,165. Electric Water Heater. Charles H. Hornby, Schenectady, N. Y.

1,735,244. Flush Valve. Lucien H. Handy, Oakland, Calif., assignor to Handy Self-Cleaning Flush Valve Co., San Francisco, Calif., a Corporation of Delaware.

1,735,554. Water-Heating Apparatus. Joseph Allyn Thatcher, San Francisco, Calif.



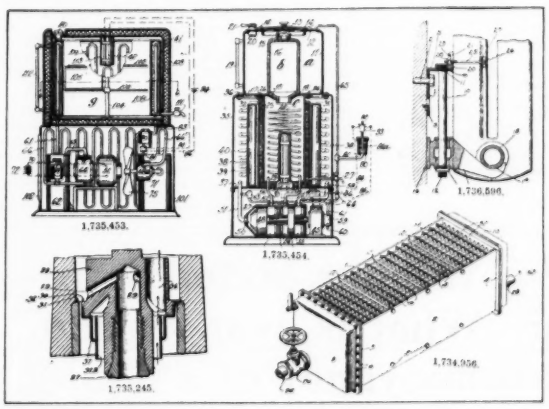
1,736,266. Automatic Water-Heating System. John Kirkeby, San Luis Obispo, Calif.

1,736,719. Flushing Valve for Cisterns. Norman Andrew Morro, Auckland, New Zealand.

Heating Department

1,735,453. Household Refrigerator. Harry W. Dyer, New York, N. Y.

1,735,454. Refrigerating Apparatus. Harry W. Dyer, New York, N. Y.



1,734,956. Radiator. Thomas A. Baldwin, Oyster Bay, N. Y.

1,735,245. Oil Burner. Franklin Hardinge, Chicago, Ill., assignor to Hardinge Brothers, Inc., Chicago, Ill., a Corporation of Illinois.

1,736,596. Radiator Hanger. Edward L. Hessel, Minneapolis, Minn., assignor to Little Giant Manufacturing Co., Minneapolis, Minn., a Corporation of Delaware.

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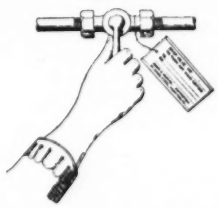

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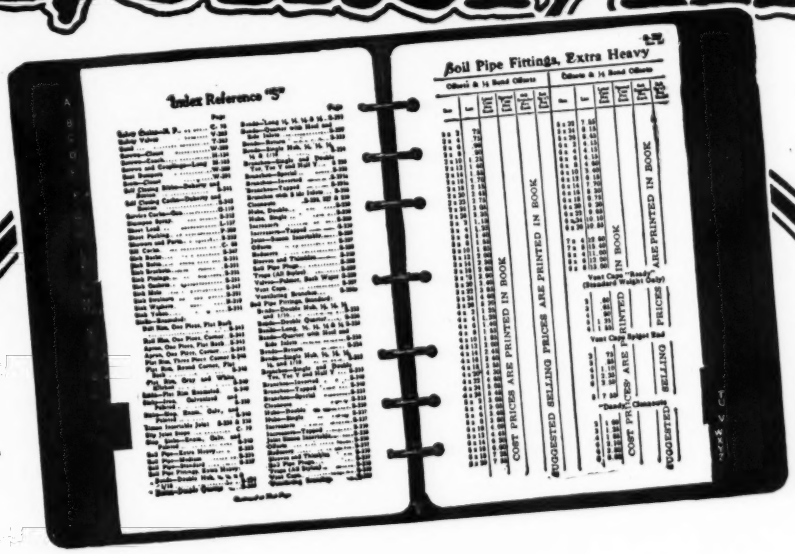
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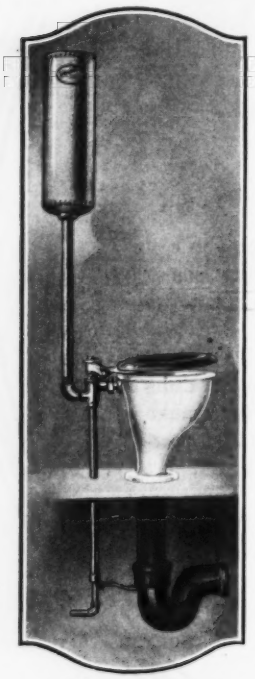
AFTER 15 YEARS A VOGEL FROST-PROOF CLOSET MAY NEED A NEW WASHER - - *but that's all*

VOGEL Frost-Proof Closets are noted for this kind of service. No upkeep costs, but absolute protection against freezing—year after year.

Over half a million VOGEL Frost-Proof Closets are now in use, and many of them have seen service for more than 20 years—*without even as much as a washer renewed!*



Number One Vogel Frost Proof Closet. Simple in operation. Sturdy in construction. Half a million in operation.

The Cold-Test Twins
At the end of the year
Are all full of pep
And Christmas cheer

Even poor Coldie
Has lost his scowl
And has thrown away
The "crying towel!"

For now that Christmas
Is almost here
And Coldie and Frostie
Look back on the year

They both are agreed
That everything's
"jake"

Even though Vogels
They *never* can break

Coldie and Frostie
Don't pass the buck
They both come right out
And wish you good luck

They hope that your profits
Were bigger than ever
And things like bad years
Will come to you—*never*

Stickers are available in ten different styles. Glad to supply any number on request.

We help you sell VOGEL Products with a large advertising and direct-by-mail campaign—anything you need in the way of folders, blotters, stickers, will be sent promptly. Folders, of course, are imprinted with your name and address.

Here's Real Proof that VOGEL Closets Will Last an Indefinite Number of Years

The illustration which we show at the right is made from a photograph taken of part of a Vogel closet which had been in use for eighteen years to our knowledge. It was still in good workable condition. During all this time not even a washer had been renewed.

See inside front page for VOGEL SELFLUSH advertisement.

JOSEPH A. VOGEL COMPANY
Wilmington, Del. St. Louis, Mo.

VOGEL *Frost-Proof* Products